



V21341

# EV-C40

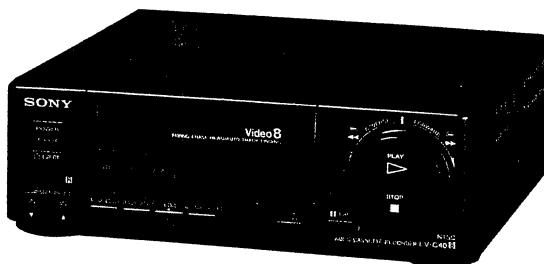
## RMT-V124A

# SERVICE MANUAL

*US Model*  
*Canadian Model*  
*PX Model*



Remote commander  
is available as a  
unit, See page 95  
for repair parts.



## Video 8

U' MECHANISM

For MECHANICAL ADJUSTMENT, refer to the "8mm  
Video MECHANICAL ADJUSTMENT MANUAL III  
(U MECHANISM)" (9-972-732-11).

### SPECIFICATIONS

#### System

Video recording system  
Rotary two-head helical scanning FM system  
Audio recording  
Rotary head, monaural system  
Video signal NTSC color, EIA standards  
Usable cassette 8 mm video format cassettes  
Tape speed SP: approx. 1.43 cm/sec.  
LP: approx. 0.72 cm/sec.  
Maximum recording time  
SP: 2 hours 30 minutes  
LP: 5 hours  
(with Sony P6-150)  
Fast-forward and rewind time  
Approx. 4 minutes (with Sony P6-120 cassette)  
VHF/UHF output  
Channel 3 or 4 (selectable)  
75 ohms, unbalanced  
VHF/UHF input  
75 ohms, F-type connector for VHF/UHF IN

#### Inputs and outputs

Video input LINE IN VIDEO (phono jack) (1)  
Input signal: 1 Vp-p, 75 ohms, unbalanced,  
sync negative  
Video output LINE OUT VIDEO (phono jack) (1)  
Output signal: 1 Vp-p, 75 ohms, unbalanced,  
sync negative

Audio input LINE IN AUDIO (phono jack) (1)  
Input level: -7.5 dBs  
Input impedance: more than 47 kilohms  
Audio output LINE OUT AUDIO (phono jack) (1)  
Standard impedance: -7.5 dBs at load impedance  
47 kilohms  
Output impedance: less than 10 kilohms  
CONTROL S IN Minijack  
CONTROL L Stereo mini-mini jack

#### General

Power requirements 120 V AC, 60 Hz (US, Canadian)  
110 V-220V AC 50/60Hz (PX)  
Power consumption 10 W (max.)  
Operating temperature 5°C to 40°C (41°F to 104°F)  
Storage temperature -20°C to 60°C (-4°F to +140°F)  
Dimensions Approx. 225 x 75 x 252 mm (w/h/d)  
Approx. 8 7/8 x 3 x 10 inch  
Weight Approx. 2.1 kg (4 lb 10 oz)

#### Remote Commander RMT-V124A

Remote control system Infrared control  
Command mode VTR2  
Power requirements 3V DC  
2 size AA batteries  
(IEC designation R6)

— continued on next page —



# 8 VIDEO CASSETTE RECORDER

# SONY®

## Supplied accessories

- Remote Commander RMT-V124A (1)
- Size AA (R6) batteries (2)
- External antenna connector (1)
- 75-ohm coaxial cable with F-type connectors (1)
- AC power cord (1)



## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

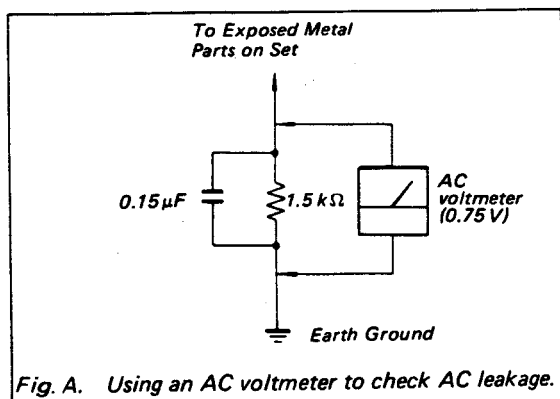


Fig. A. Using an AC voltmeter to check AC leakage.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

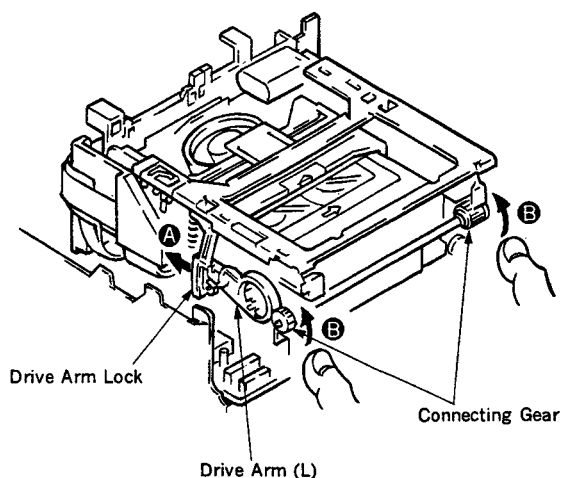
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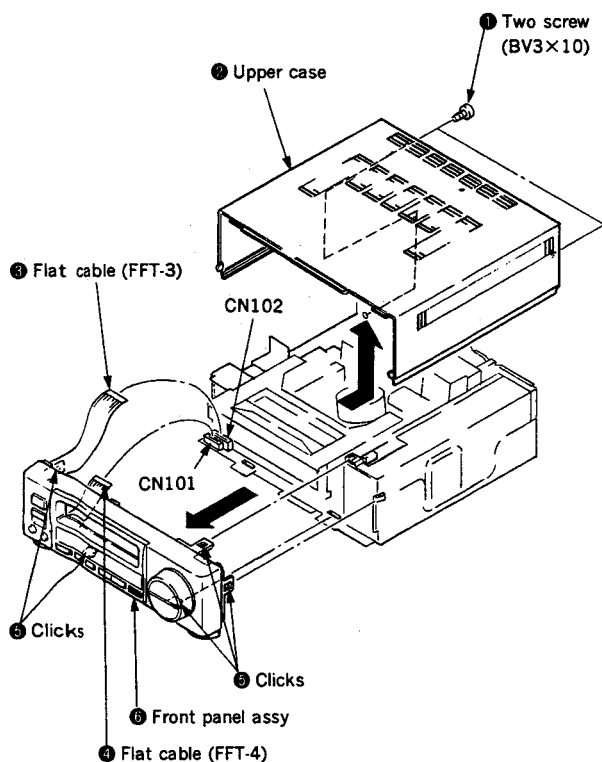
## SECTION 1 SERVICE NOTE

### 1-1. REMOVAL OF CASSETTE AT FAILURE WITH CASSETTE INSERTED

- Ⓐ If tape is wound on the drum and it cannot be removed:  
Rotate the capstan motor wheel in either direction and rotate the S or R reel to house the tape. Then, perform Procedure Ⓑ.
- Ⓑ If tape is housed in the cassette half and cannot be removed:
  - ① Remove the MD block. (For removal, refer to Section 3-3.)
  - ② Release the drive arm lock from the drive arm (L) located between the L frame and the left side of the cassette controller in the arrow direction Ⓐ.
  - ③ Rotate the connecting gear in the arrow direction Ⓑ with both the thumbs.

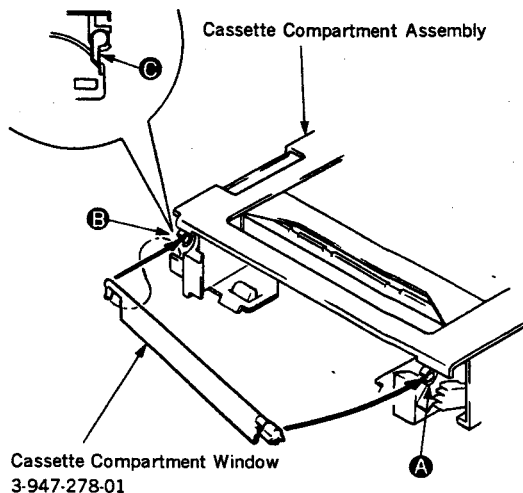


### 1-2. REPLACEMENT OF EXTERNAL PARTS



### 1-3. REPLACEMENT OF CASSETTE DOOR ASSEMBLY

- 1) Remove the front panel.
- 2) First undo Ⓐ portion toward you and then undo Ⓑ.



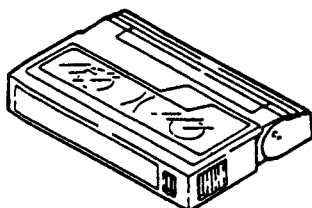
- 3) When installing, as shown above, first put in Ⓑ portion by setting the claw Ⓒ. Then, put in Ⓐ portion and install all so that the door hangs almost vertically.

## 1-4. CLEANING OF VIDEO HEAD AND RUN SYSTEM

### Method 1

[Cleaning Method with Cleaning Tape]

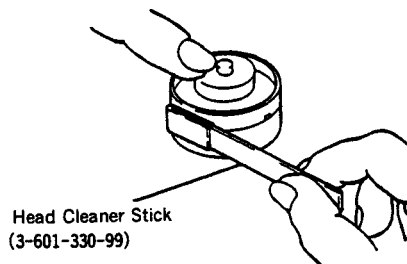
- A cleaning cassette should be used. (When using, the attached manual for the cleaning cassette should be thoroughly read.)



### Method 2

[Cleaning Method with Cleaning Liquid]

- ① Remove the upper case of the video deck.
- ② Apply cleaning liquid to a head cleaner stick.
- ③ As shown in the right figure, press the head cleaner stick lightly. Turn the rubber of the rotary upper drum gradually and clean the video deck.



[Cleaning Method for Run System]

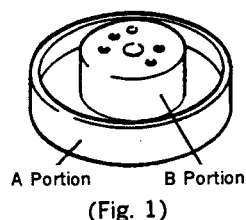
- ① Apply cleaning liquid to a head cleaner stick.
- ② Clean the guides which tape touches directly and the pinch roller with the head cleaner.

## 1-5. REPLACEMENT OF UPPER ROTARY DRUM

### Method 3

#### Caution

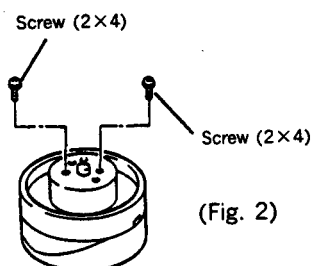
- Particular care must be taken when handling the video head and the terminals
- When handling the rotary upper drum, do not touch the side (A portion) and hold the top (B portion) (See Fig. 1)



(Fig. 1)

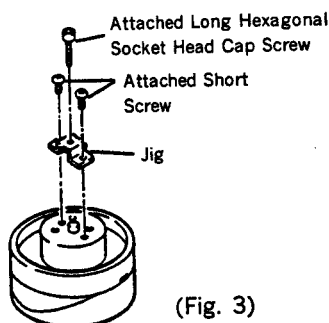
### Removal of Rotary Upper Drum

- ① Remove two screws (2×4) (See Fig. 2).



(Fig. 2)

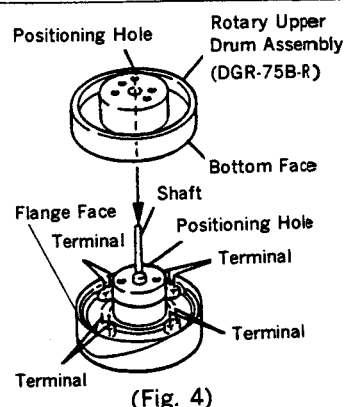
- ② Fix the jig (supplied with the spare rotary upper drum) with the two attached short screws. Then, put the attached long screw into the jig until the rotary upper drum may be removed (See Fig. 3).



(Fig. 3)

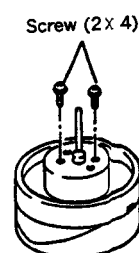
### Installation of New Rotary Upper drum

- ① Clean the flange face and the bottom face of the new rotary upper drum (See Fig. 4).
- ② Insert the shaft attached to the jig into the positioning hole in the lower drum. Then, put the shaft through the positioning hole in the new rotary upper drum and set the drum lightly.



(Fig. 4)

- ③ With the shaft inserted into the positioning hole, push into the upper drum lightly with a hand. If the drum is not allowed to be bottomed, alternately tighten two screws (2×4) gradually and install the drum (See Fig. 5)
- ④ Pull out the shaft inserted. If the shaft is not allowed to be withdrawn smoothly, go back to Step ② and redo the procedure.



(Fig. 5)

- ⑤ Once the drum has been replaced, clean the video head and the run system with a head cleaner stick (See "Cleaning Method 2 for Video Head and Run System).

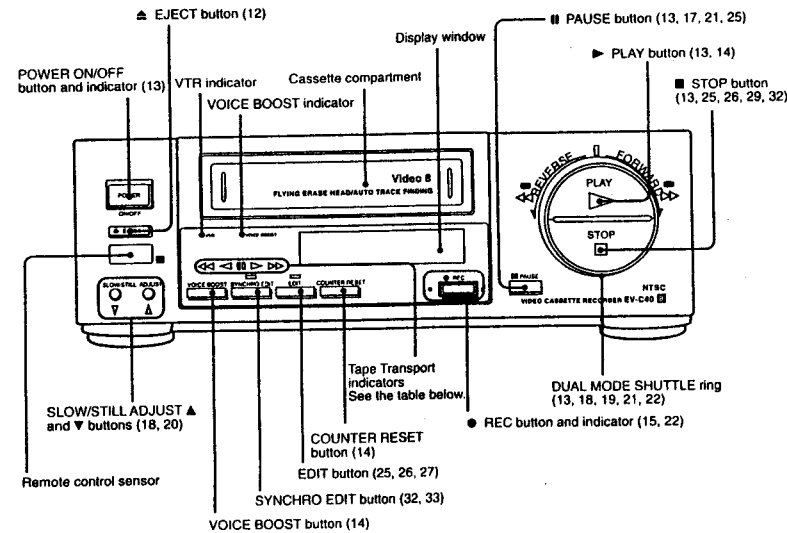
SECTION 2  
GENERAL

Identifying the Parts and Controls

This section is extracted from instruction manual.

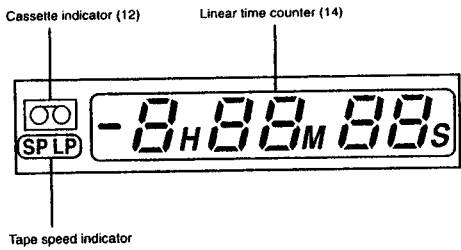
Front Panel

The function of each control is explained on the page indicated in parentheses ( ).



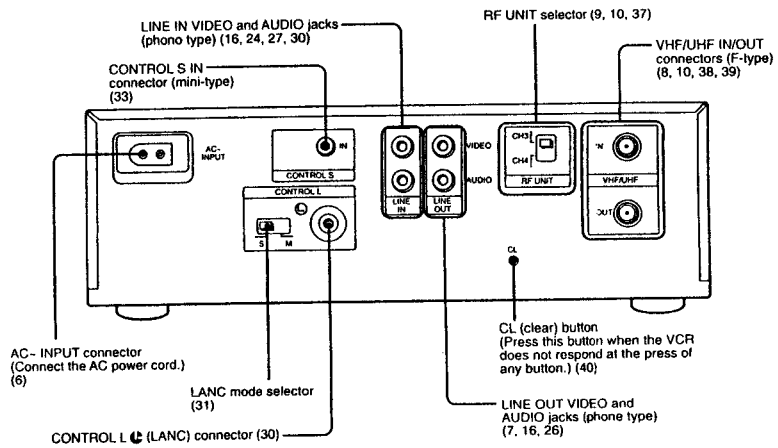
Display Window

Each indicator is explained on the page indicated in parentheses ( ).



Rear Panel

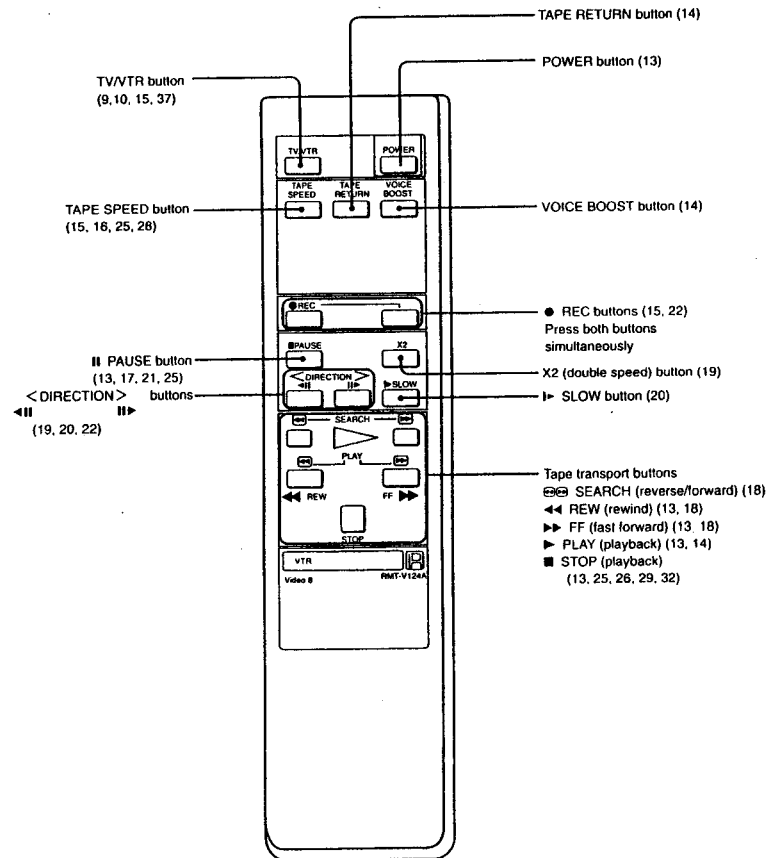
The function of each control is explained on the page indicated in parentheses ( ).



⏮	Rewind	⏭	Fast forward
⏪	Play pause (reverse)	⏩	Play pause (forward)
⏮	Picture search (reverse)	⏭	Picture search (forward)
⏮	Locked picture search (reverse)	⏭	Locked picture search (forward)
⏮	x 2 (double speed) playback (reverse)	⏭	x 2 (double speed) playback (forward)
⏮	Play (reverse)	⏭	Play (forward)
⏮	Slow motion play (reverse)	⏭	Slow motion play (forward)
⏮	Frame-by-frame picture (reverse)	⏭	Frame-by-frame picture (forward)
⏮	Auto play		

## Remote Commander

The function of each control is explained on the page indicated in parentheses ( ).



## Features

### Editing

- **DUAL MODE SHUTTLE ring**  
Allows quick access to the desired scene and playback at various speeds in both forward and reverse directions.
- **Synchronized editing**  
Controls two VCRs (recording VCR and playback VCR) connected with either control L (LANC) or control S connection at a press of one button.
- **Control L (LANC) connector**  
Allows connection with other video equipment such as a camcorder easily controlling tape transportation. Furthermore, simultaneous control of both equipment is available for bi-directional synchronized editing.
- **CONTROL S INPUT connector**  
Allows remote control of this VCR by other Sony video equipment with a CONTROL S OUTPUT jack.

### Function

#### Voice boost function

When playing back a tape recorded with a video camera recorder (camcorder), voice boost enhances the voice portion of the sound and reduces unwanted background noise like wind so that it's easier to listen to conversation.

#### Note

##### No TV or cable reception

Since no tuner is built in this VCR, you cannot record a TV or cable program through the RF (VHF/UHF IN and OUT) connection.

### How to Use This Manual

This manual is divided into the following six chapters: **Chapter 1** Introduction, **Chapter 2** Preparation, **Chapter 3** Basic Operations, **Chapter 4** Advanced Operations, **Chapter 5** Editing, and **Chapter 6** Additional Information. If you are already familiar with basic operations, skip **Chapter 3** Basic Operations and see **Chapter 4** Advanced Operations.

If you have any problems in installing or operating the EV-C40, refer to the troubleshooting section (see page 40) first before calling your local Sony dealer.

#### When you are reading through the manual, remember:

- Buttons and switches on the VCR to be used in operating the VCR are called out and shown in uppercase letters in the illustrations.
- Buttons and switches on the Remote Commander to be used for operating the VCR are called out and enlarged in the illustrations.

### Conventions



This indicates a function operated only with the buttons on the VCR itself, but not with those on the Remote Commander.



This indicates a function operated only with the buttons on the Remote Commander, but not with those on the VCR itself.

### Unpacking

Unpack all the items and check to confirm that you have everything listed below.

- Remote Commander RMT-V124A (1)
- Size AA (R6) batteries (2)
- External antenna connector (1)
- 75-ohm coaxial cable with F-type connectors (1)
- AC power cord (1)

# Synchronized Editing

If your other VCR has a control L (LANC) connector, you can take advantage of a feature called "Synchronized Editing" that controls both VCRs (recording VCR and playback VCR), and releases the pause when SYNCHRO EDIT is pressed. To use this function, you must connect a designated control cable (control L or S cable) in addition to the connections of the audio and video cables.

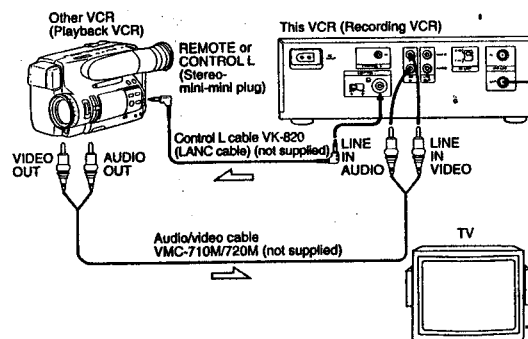
There are two types of control cables: control L (LANC) cable and control S cable depending on the type of connectors of the VCRs.

## Connecting Video Equipment with the LANC Connector

### Notes

- When connecting two VCRs, do not connect them so that both VCRs are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.
- If your playback VCR is a stereo unit, make connections using the VCM-910MS/920MS cable (not supplied).
- If another VCR has both the LANC connector and the CONTROL S connector, use the LANC connector. Do not make the CONTROL L and CONTROL S connections simultaneously.

**About the LANC**  
LANC stands for Local Application Control System.  
The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE on other equipment.



— : Signal flow

## Setting the LANC Mode

When you perform synchronized editing using the control L (LANC) cable, remember to set the LANC mode as described below:

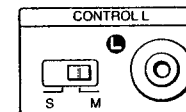
Be sure this setting is correct before you begin editing, since it decides which VCR controls which.

### When you want to control the other VCR from this VCR

This VCR



Other VCR



Set the LANC mode selector on the rear to "M." This VCR can now control the other VCR.

Select "S" for LANC mode setting. For the video camera recorders such as CCD-TR series, the LANC mode is always set to "S."

### When you want to control this VCR from the other VCR

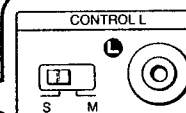
Other VCR



This VCR



Select "M" for LANC mode setting. If you cannot set the LANC mode to "M" on the other VCR, you cannot control this VCR from the other VCR. See the instruction manual supplied with the other VCR.



Set the LANC mode selector on the rear to "S." The other VCR can now control this VCR.

### Note

Do not make the CONTROL L connection between this VCR and the other VCR with the LANC mode settings of both VCRs set to the same position.

## Synchronized Assemble Editing

### Before You Begin

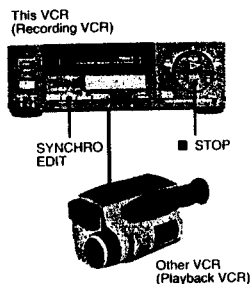
- Press TAPE SPEED on the Remote Commander to select the tape speed (SP or LP).
- Check the LANC mode setting (see page 31).

### Operation

- 1 Insert a recorded cassette into the other (playback) VCR and a cassette for recording into this (recording) VCR.
- 2 Locate the recording start point on this VCR and put this VCR in recording pause mode.
- 3 Locate the beginning of the scene to be edited out on the other VCR and put the other VCR in playback pause mode.
- 4 Press SYNCHRO EDIT on this VCR. The SYNCHRO EDIT indicator lights up. Pause mode of both the recording VCR and the playback VCR is released to start editing.
- 5 Press SYNCHRO EDIT on this VCR at the point where you want to stop recording. This VCR enters recording pause mode, and the other VCR enters playback pause mode.
- 6 If you have another scene you want to edit, repeat steps 3 to 5.
- 7 After editing has been completed, press ■ STOP on both VCRs.

**To make use of the linear counter "0H00M00S"(zero) for synchronized editing**  
 You can perform synchronized insert editing only when this VCR is used as the recording VCR and the LANC mode is set to "M."  
 When the linear counter on this (recording) VCR becomes zero during synchronized editing, the other (playback) VCR enters playback pause mode and this VCR enters recording pause mode.

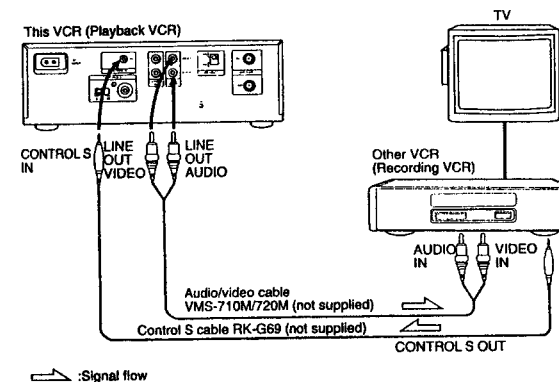
See the instructions on page 29 for operation.  
 Follow the operation procedures 1, 2 and 3 on page 29.  
 To start editing, press SYNCHRO EDIT on this VCR.  
 When the linear counter becomes zero, the other VCR enters playback pause mode and this VCR enters recording pause mode.



#### During synchronized editing

- The EDIT function is activated automatically.
- If the linear counter becomes zero, synchronized editing stops.
- The COUNTER RESET button cannot function.

## Connecting Video Equipment with the CONTROL S Connector



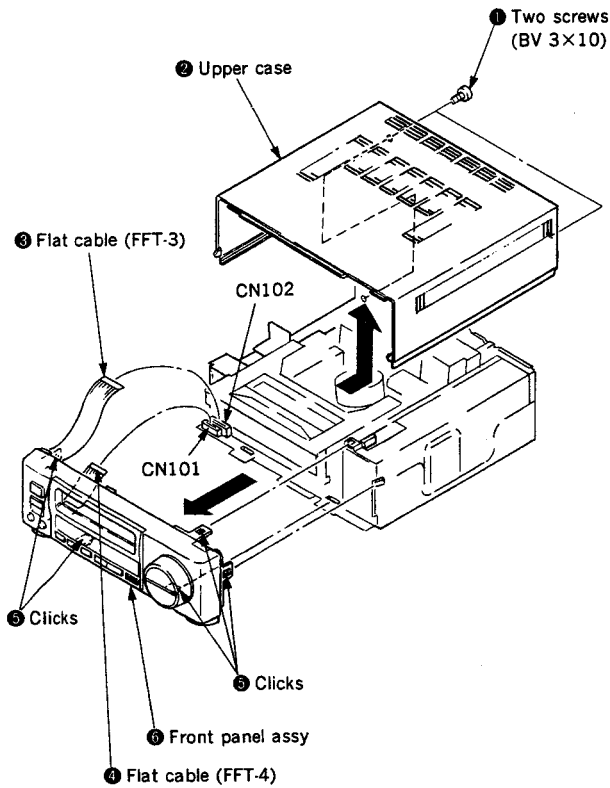
#### When using the CONTROL S cable

The synchronized editing using the CONTROL S connector is the same as the synchronized editing using the LANC connector. This enables you to pause both VCRs and release pause mode of both VCRs.  
 You can only perform synchronized editing using the CONTROL S IN connector when the other VCR has the CONTROL S OUT connector.  
 Set the Command Mode of the other VCR to VTR2.  
 Press SYNCHRO EDIT on the other VCR having the CONTROL S OUT connector.

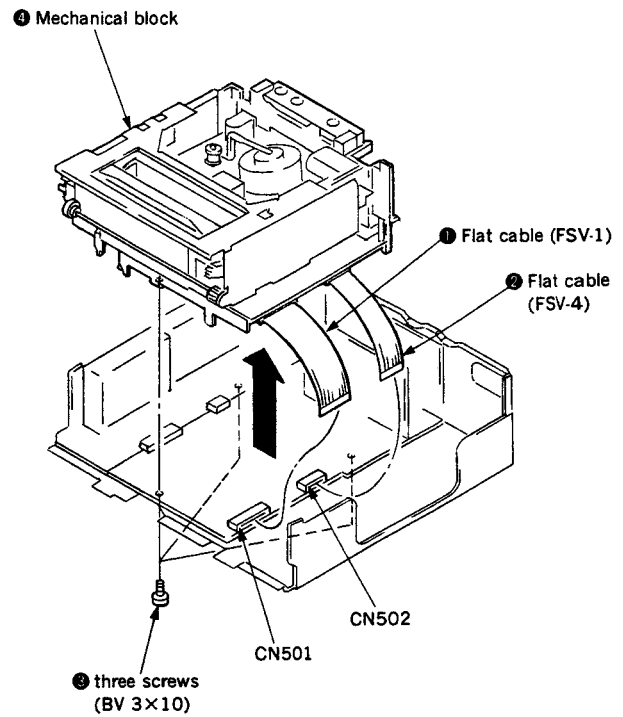


## SECTION 3 DISASSEMBLY

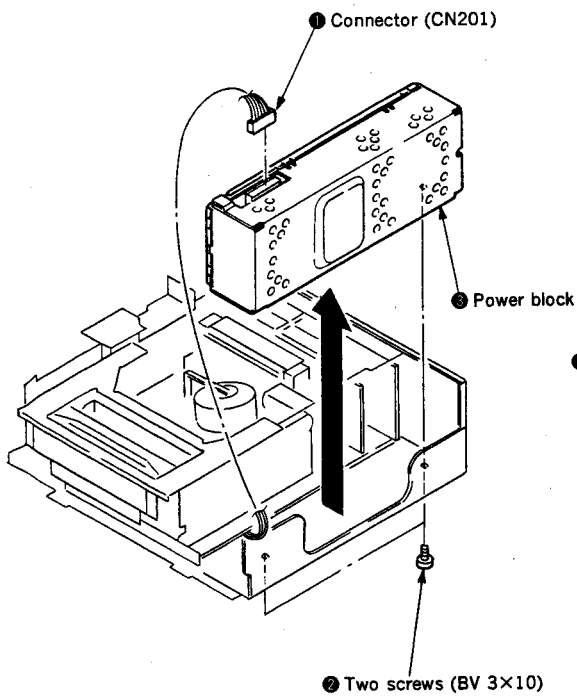
### 3-1. REMOVAL OF FRONT PANEL AND UPPER CASE



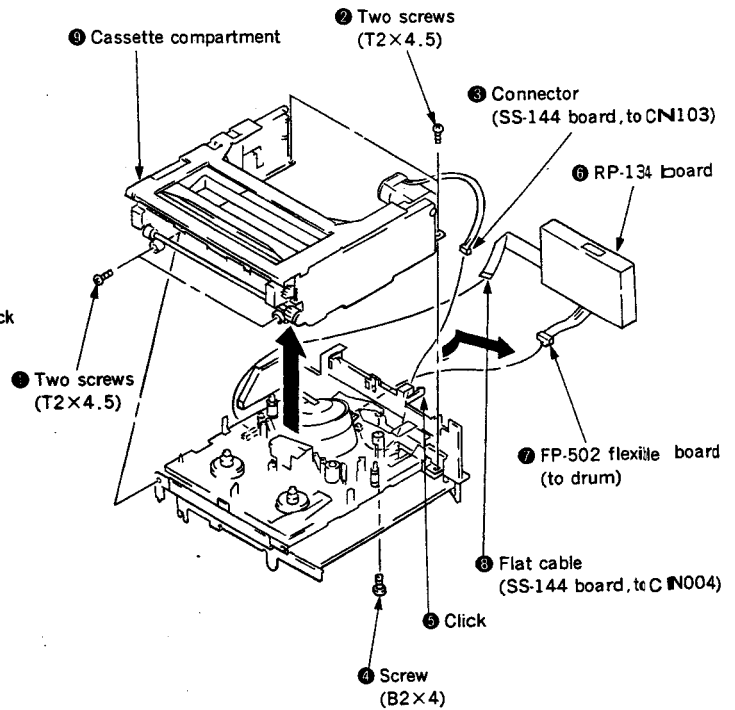
### 3-3. REMOVAL OF MECHANICAL BLOCK



### 3-2. REMOVAL OF POWER BLOCK

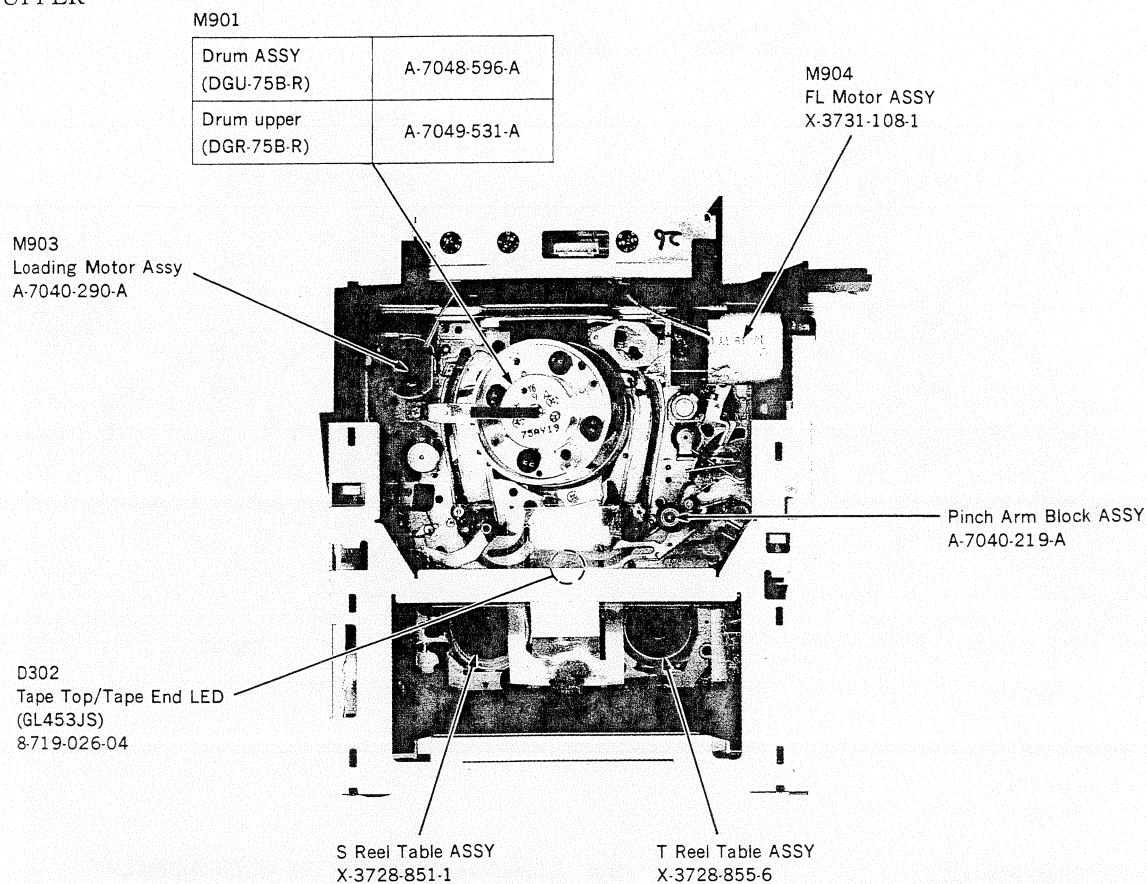


### 3-4. REMOVAL OF CASSETTE COMPARTMENT

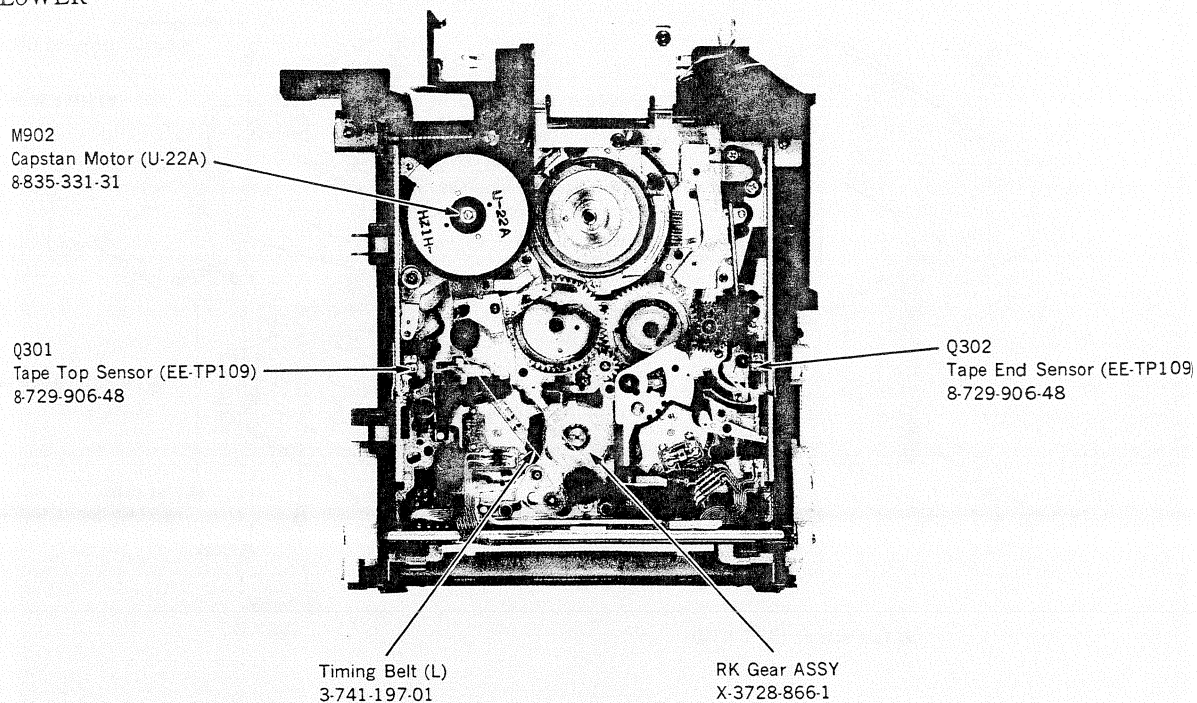


### 3-5. MECHANICAL INTERNAL VIEWS

—UPPER—

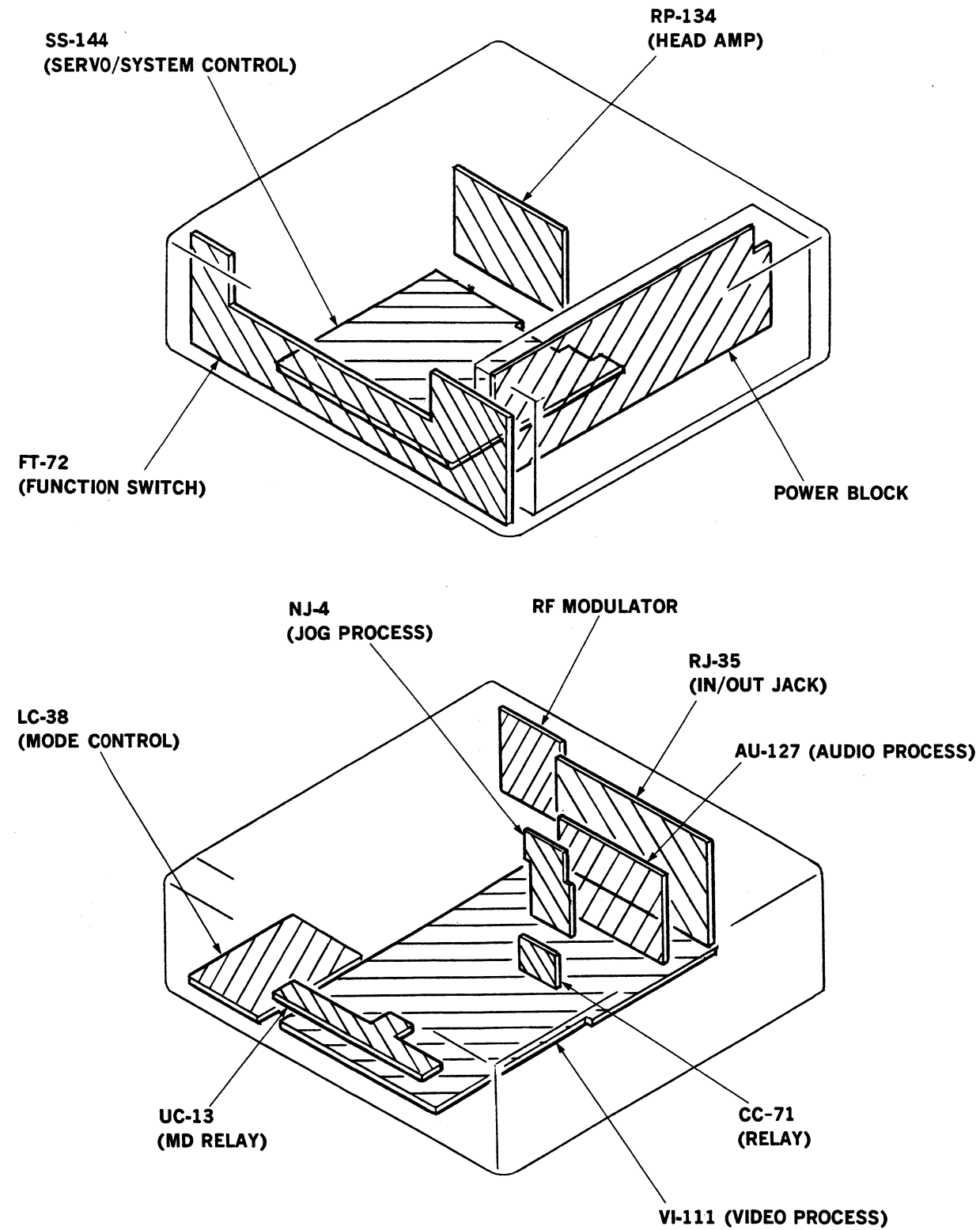


—LOWER—

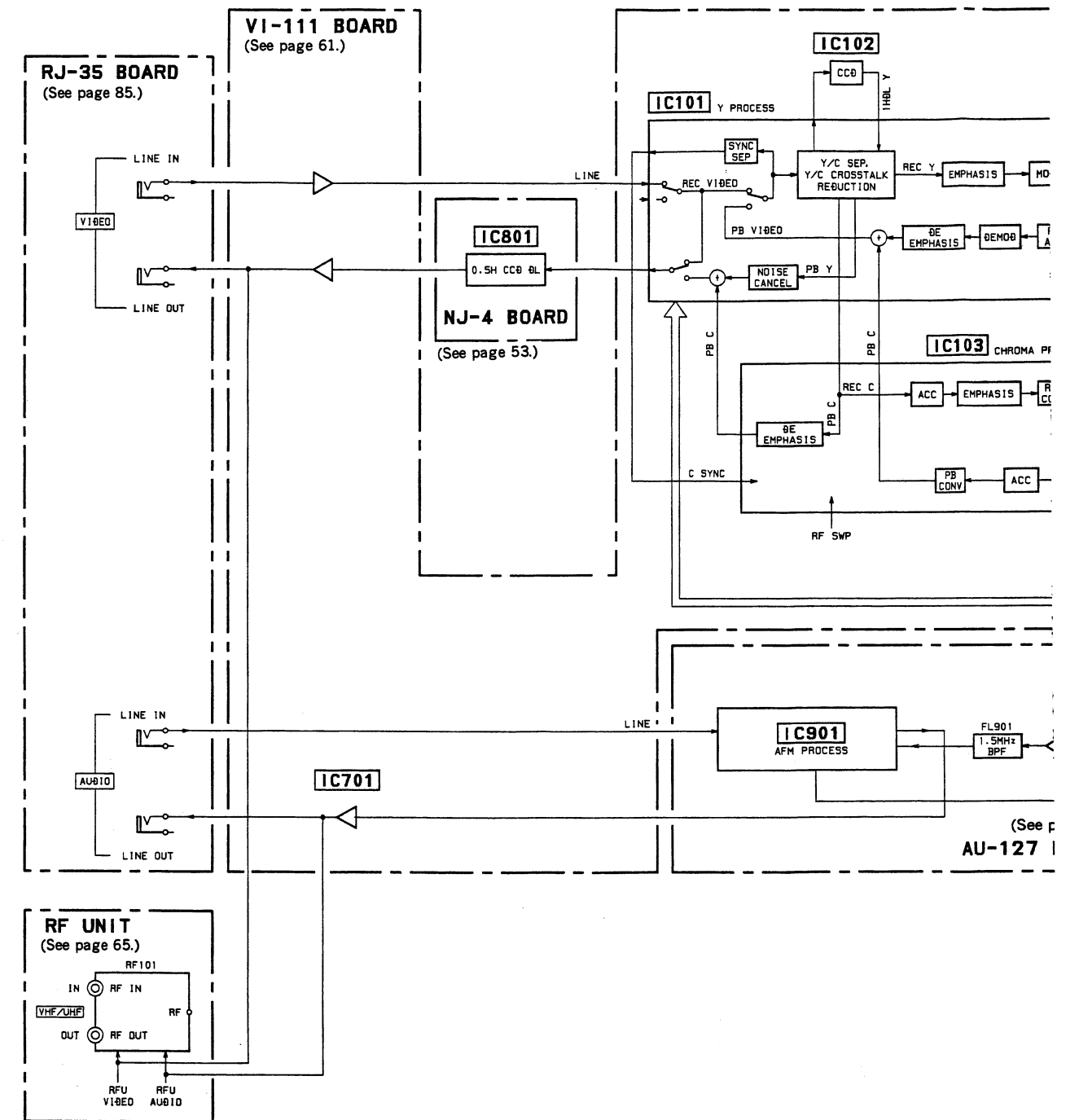


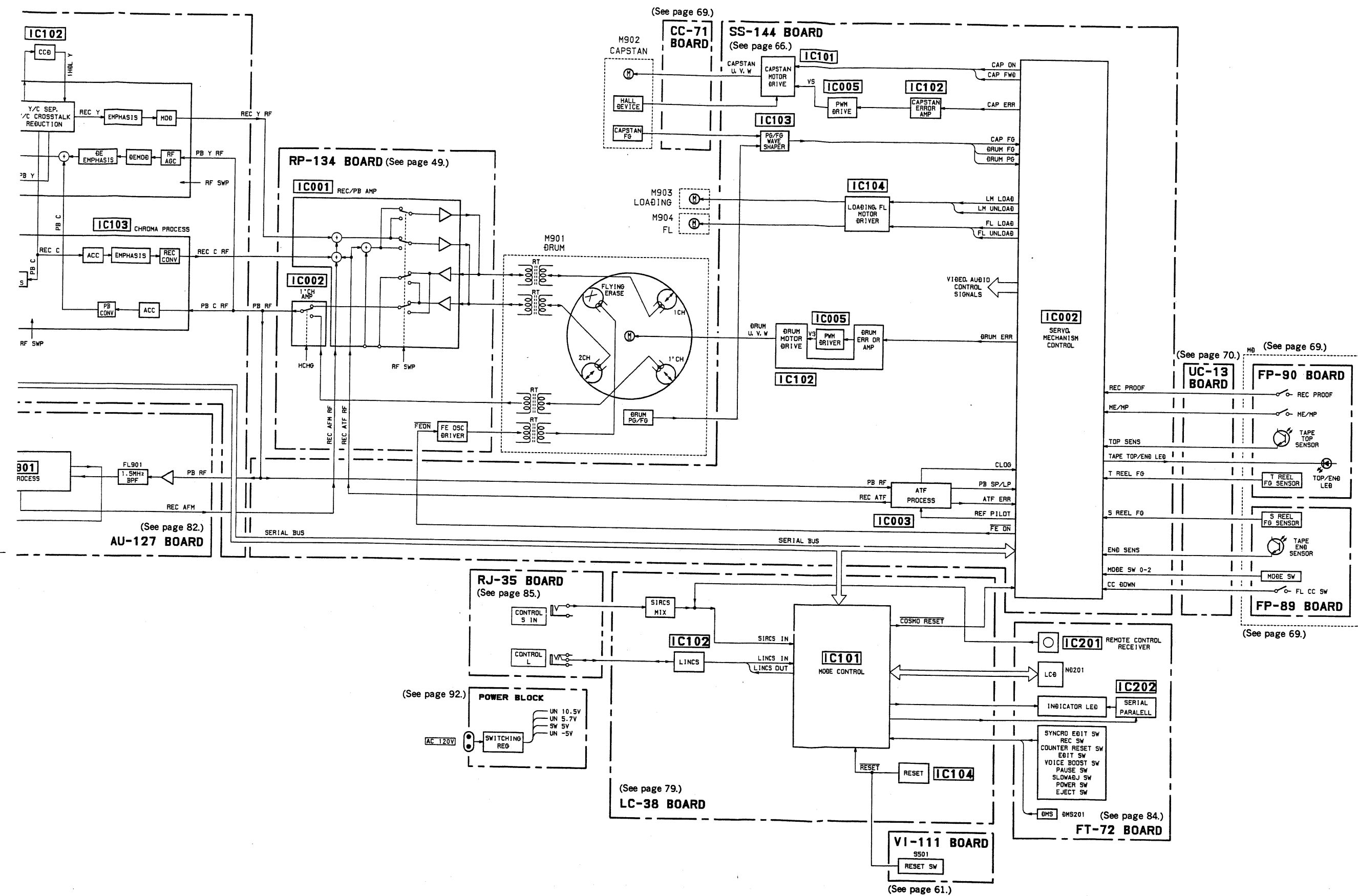
## SECTION 4 DIAGRAMS

### 4-1. CIRCUIT BOARDS LOCATION

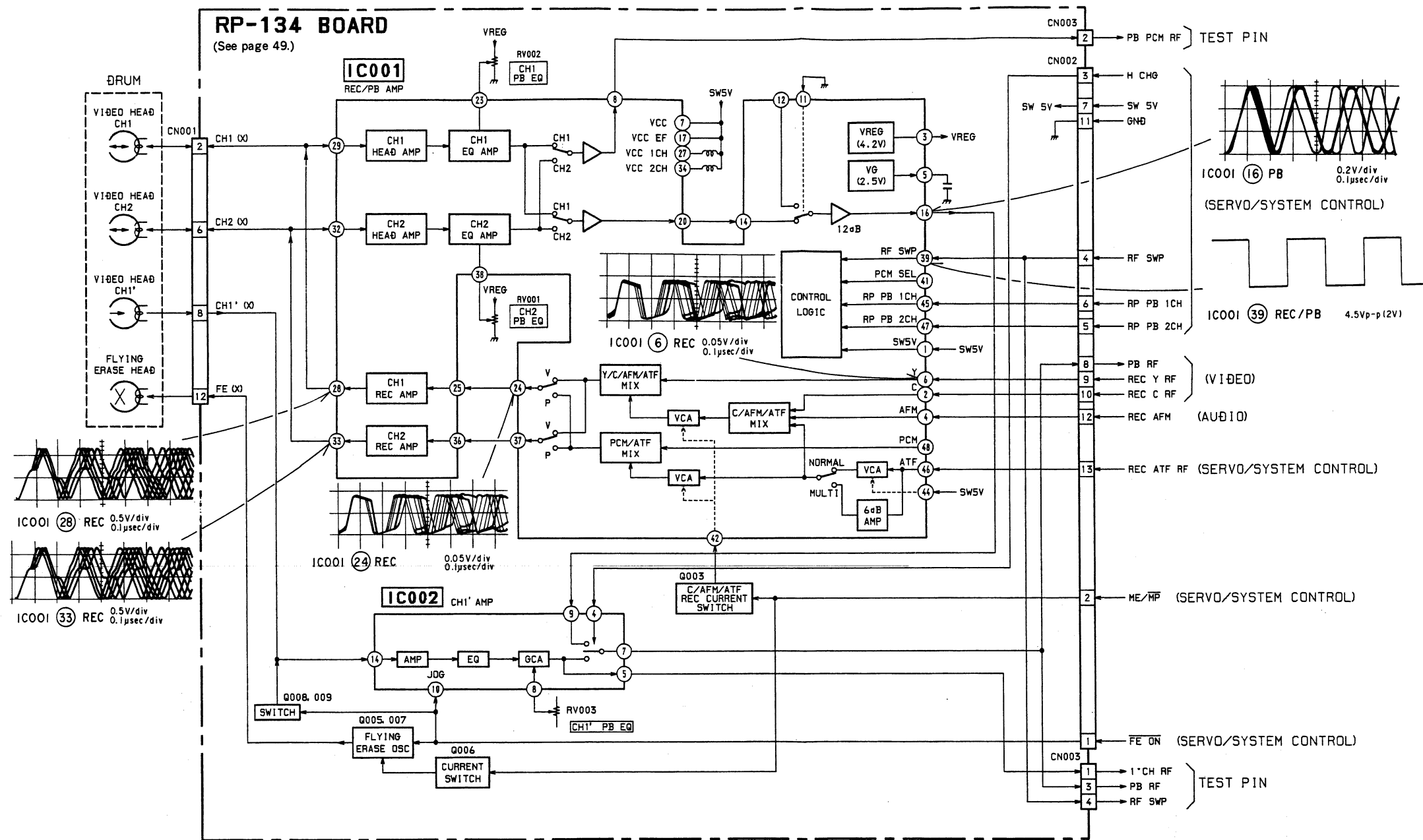


### 4-2. OVERALL BLOCK DIAGRAM

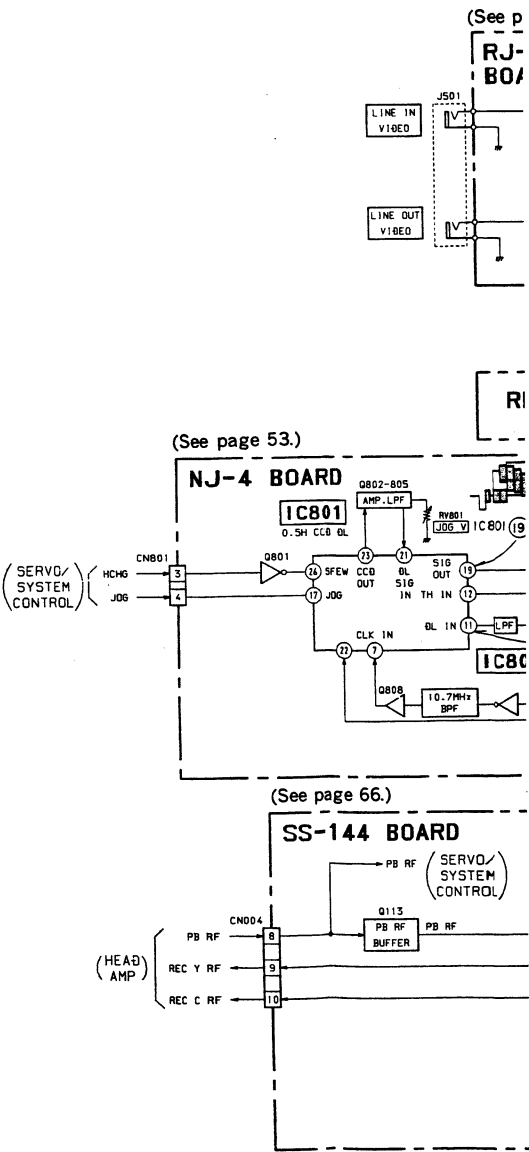




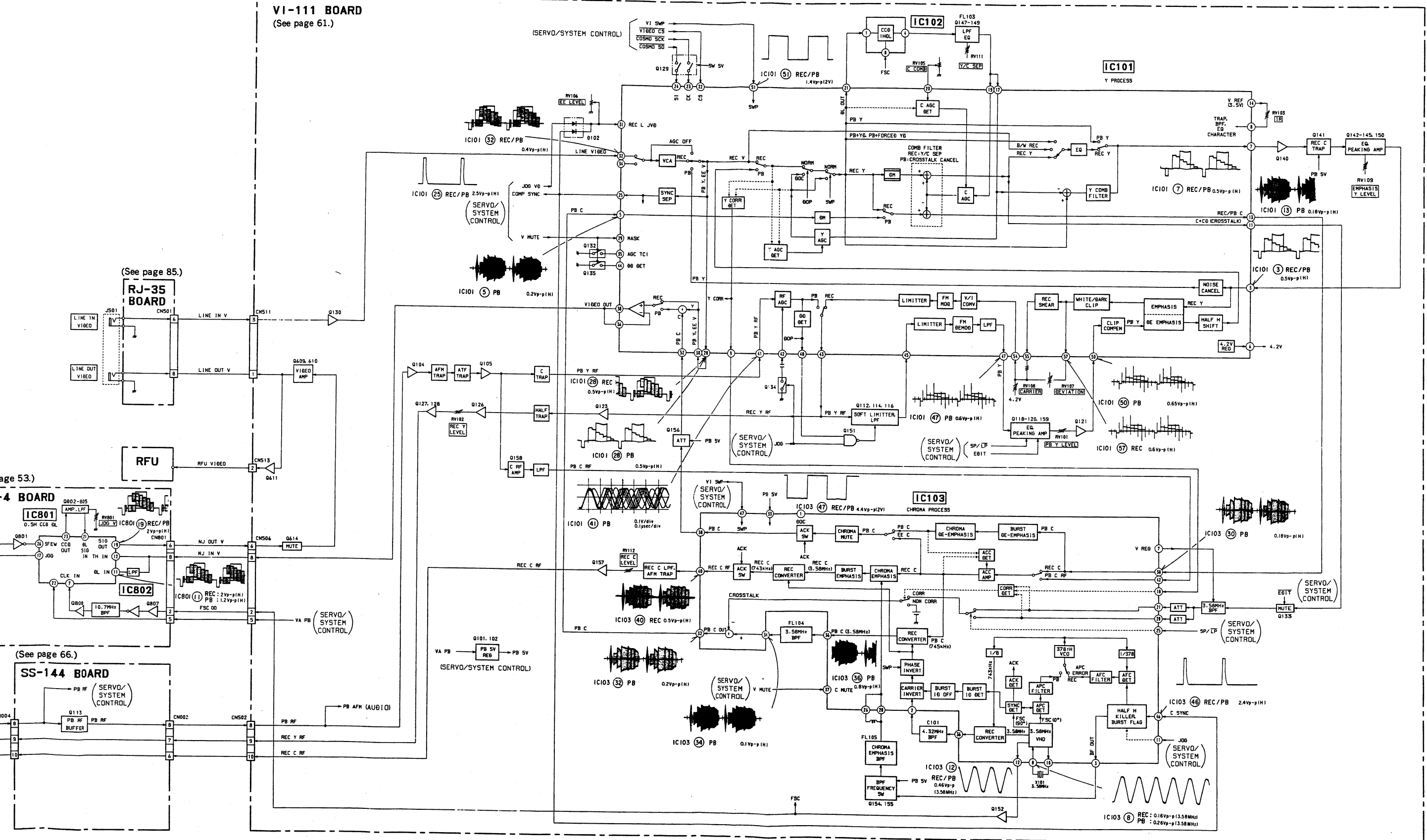
4-3. HEAD AMP BLOCK DIAGRAM



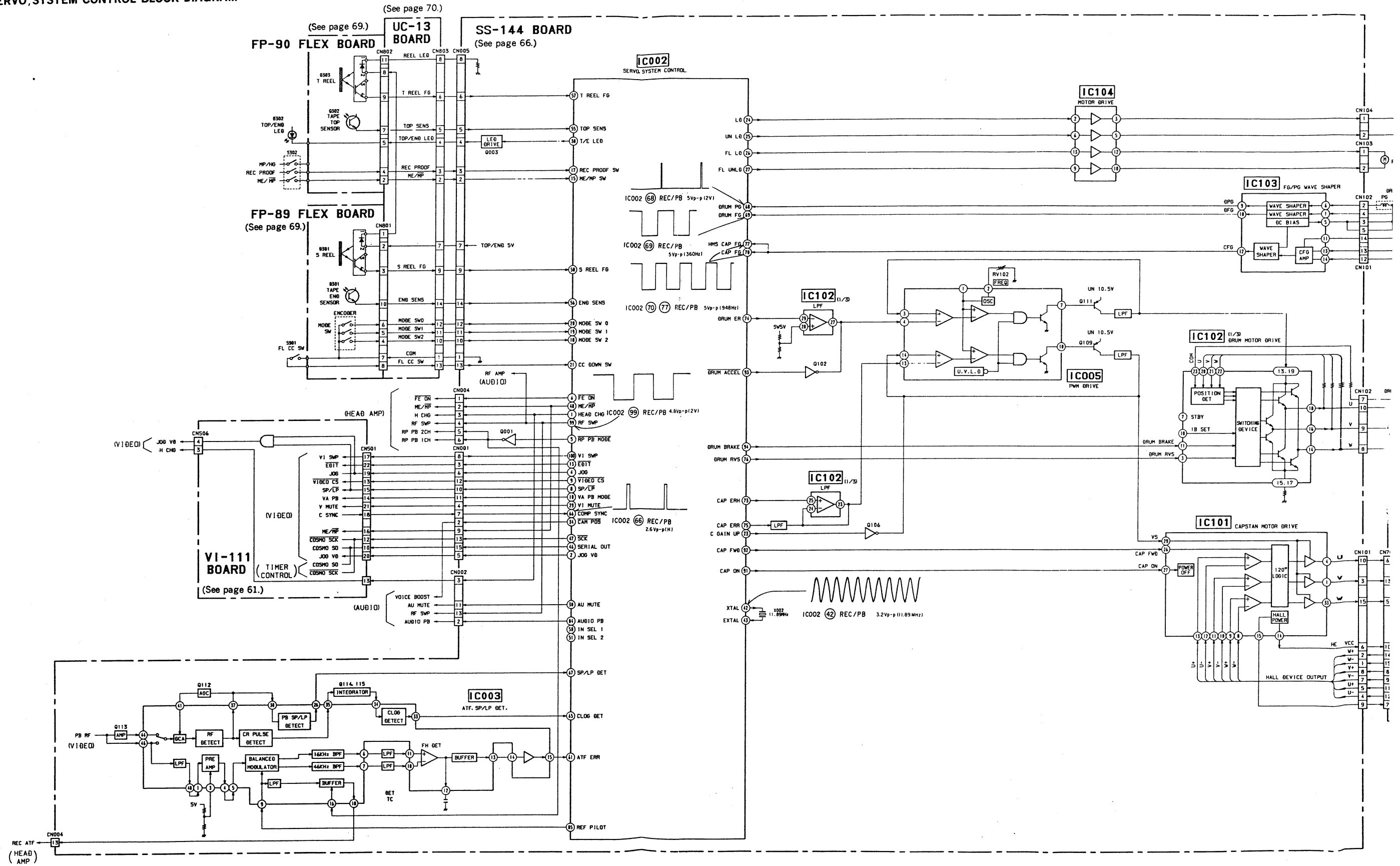
4-4. VIDEO BLOCK DIAGRAM

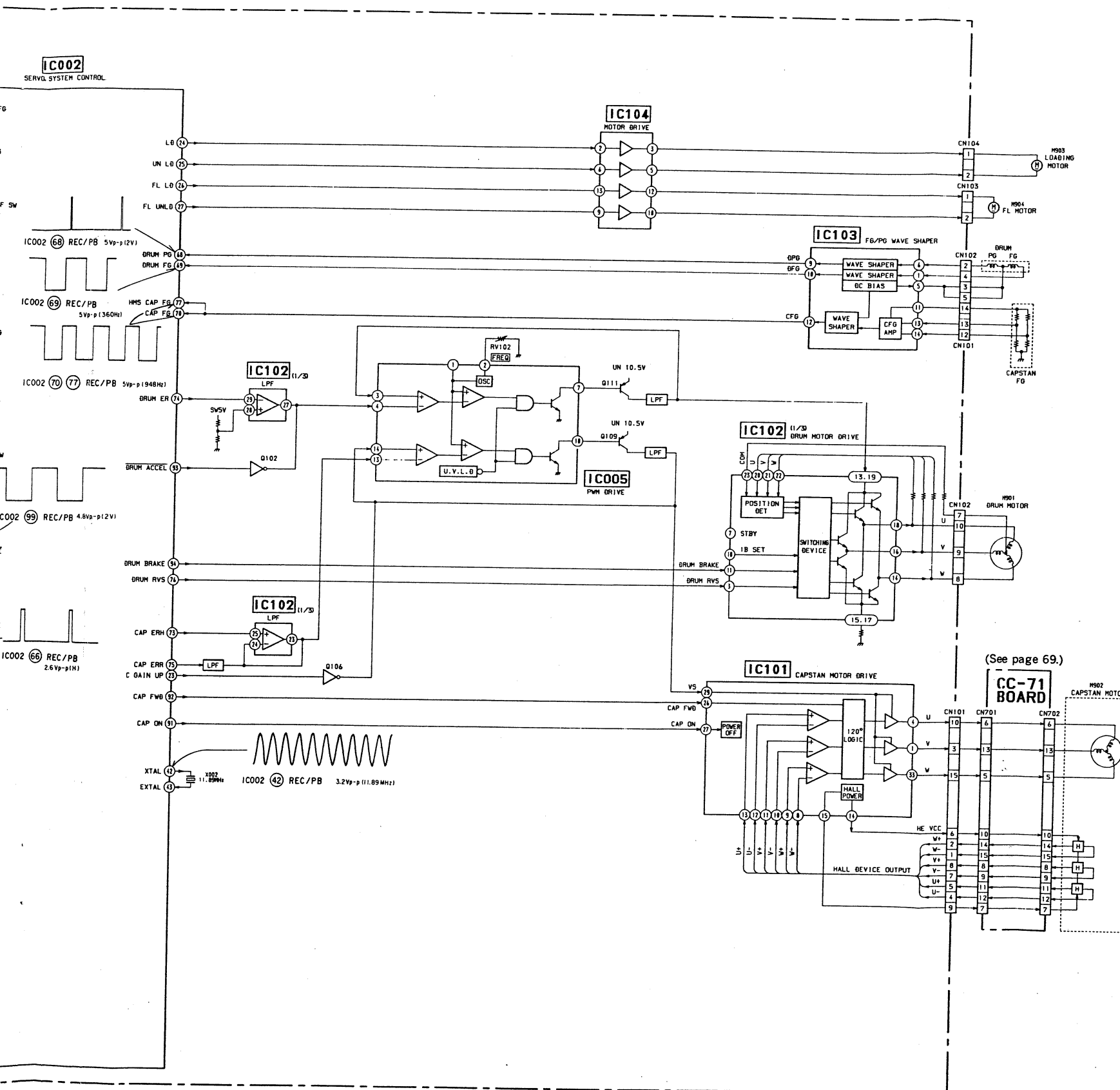


VI-111 BOARD  
(See page 61.)



#### 4-5. SERVO, SYSTEM CONTROL BLOCK DIAGRAM







## 4-6. SYSTEM CONTROL — VIDEO BLOCK INTERFACE (SS-144 BOARD)

Signal	Pin No.	I/O	VTR MODE												
			STOP	FF	REW	×2	-×2	PB	PICTURE SEARCH		PB・PAUSE	SLOW	REVERSE SLOW	REC	REC PAUSE
									CUE	REVIEW					
SP/LP	IC002 ⑧	O	* 1	H	H	* 1	* 2	* 2	* 2	* 2	* 1	* 1	* 1	* 11	H/L
V PB MODE	IC002 ⑩	O	L	L	L	H	H	H	H	H	H	H	H	L	L
JOG VD	IC002 ②	O	L	L	L	* 3	* 3	L	* 3	* 3	* 3	* 3	* 3	L	L
RP PB MODE	IC002 ⑤	O	L	L	L	L	L	L	L	L	L	L	L	H	L
FE ON	IC002 ⑥	O	H	H	H	H	H	H	H	H	H	H	H	L	H
HEAD CHANGE	IC002 ①	O	L	L	L	* 4	* 4	L	L	L	* 4	* 4	* 4	L	L
VI SWP	IC002 ⑩	O	L	* 6	* 6	* 5	* 5	* 6	* 6	* 6	* 5	* 5	* 5	* 6	* 6
RF SWP	IC002 ⑨	O	L	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6
JOG	IC002 ④	O	L	L	L	H	H	L	H	H	H	H	H	L	L
SP/LP DET	IC002 ⑦	I	L	* 7	* 7	* 7	* 7	L	* 7	* 7	* 7	—	—	H	H
CLOG DET	IC002 ⑤	I	H	* 8	* 8	* 8	* 8	* 8	* 8	* 8	* 8	* 8	* 8	H	* 8
COMP SYNC	IC002 ⑥	I	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9	* 9
AUDIO PB	IC002 ④	O	L	L	L	* 10	* 10	H	* 10	* 10	H	* 10	* 10	L	L
AU MUTE	IC002 ⑩	O	L	L	L	* 12	* 12	L	H	H	H	H	H	L	L
VIDEO CS	IC002 ⑨	O	V-cycle“Low”pulse												
SO BUS	IC002 ④	O	V-cycle pulse rank												
SCK	IC002 ⑦	O	V-cycle“Low”pulse rank												

- \* 1. This outputs the result of determining what was the previous mode.  
"High" output in SP mode, "Low" output in LP mode.
- \* 2. This outputs the result of determining which record mode the playback tape has.
- \* 3. Pseudo VD signal
- \* 4. "High" when the HEAD for special playback is selected.
- \* 5. Output pulse to supply the OR of HEAD CHANGE and RF SWP.
- \* 6. Pulse of 30Hz, 50% duty (synchronized with the rotation of the drum).
- \* 7. "High" at the SP record portion and "Low" at the LP record portion of tape.
- \* 8. "High" at the blank portion or at any drop out portion of tape.  
Head clogging detection input.
- \* 9. Composite synch signal input separated from line input video signal, camera video signal or playback video signal. (This signal has positive polarity).
- \* 10. "Low" during shuttle editing from REC PAUSE, "High" while in any other mode.
- \* 11. This varies according to SP/LP switching. It becomes "High" when SP mode is entered and "Low" when LP mode is entered.
- \* 12. "Low" during ON of audio when ×2 speed playback, "High" during OFF.

VTR MODE						
TURE SEARCH		PB • PAUSE	SLOW	REVERSE SLOW	REC	REC PAUSE
	REVIEW					
	* 2	* 1	* 1	* 1	* 11	H/L
	H	H	H	H	L	L
	* 3	* 3	* 3	* 3	L	L
	L	L	L	L	H	L
	H	H	H	H	L	H
	L	* 4	* 4	* 4	L	L
	* 6	* 5	* 5	* 5	* 6	* 6
	* 6	* 6	* 6	* 6	* 6	* 6
	H	H	H	H	L	L
	* 7	* 7	—	—	H	H
	* 8	* 8	* 8	* 8	H	* 8
	* 9	* 9	* 9	* 9	* 9	* 9
	* 10	H	* 10	* 10	L	L
	H	H	H	H	L	L
7-cycle“Low”pulse						
7-cycle pulse rank						
ycle“Low”pulse rank						

e blank portion or at any drop out portion of tape.  
ng detection input.  
ynch signal input separated from line input video signal, camera video signal  
video signal. (This signal has positive polarity).  
g shuttle editing from REC PAUSE, “High” while in any other mode.  
according to SP/LP switching. It becomes “High” when SP mode is entered  
when LP mode is entered.  
g ON of audio when ×2 speed playback, “High” during OFF.

4-7. MECHANICAL CONTROL — SERVO BLOCK INTERFACE (SS-144 BOARD)

Signal	Pin No.	I/O	VTR MODE												
			STOP	FF	REW	×2	-×2	PB	PICTURE SEARCH		PB・ PAUSE	SLOW	REVERSE SLOW	REC	REC PAUSE
									CUE	REVIEW					
T.REEL FG	IC002 ㉟	I	—	* 1	* 1	* 1	* 1	* 1	* 1	* 1	—	* 1	* 1	* 1	—
S.REEL FG	IC002 ㊿	I	—	* 1	* 1	* 1	* 1	* 1	* 1	* 1	—	* 1	* 1	* 1	—
ATF ERROR	IC002 ㊿	I	—	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2	* 2
DRUM PG	IC002 ㊿	I	—	* 3	* 3	* 3	* 3	* 3	* 3	* 3	* 3	* 3	* 3	* 3	* 3
DRUM FG	IC002 ㊿	I	—	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4	* 4
CAP FG/HMS CAP FG	IC002 ㊿ ㊿	I	—	* 5	* 5	* 5	* 5	* 5	* 5	* 5	—	* 5	* 5	* 5	—
CAP ON	IC002 ㊿	O	L	H	H	H	H	H	H	H	L	* 8	* 8	H	L
REF PILOT	IC002 ㊿	O	* 7	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6	* 6
RP PB MODE	IC002 ㊿	O	L	L	L	L	L	L	L	L	L	L	L	H	L
DRUM FWD/RVS * 11	IC002 ㊿	O	H	H	H	H	H	H	H	H	H	H	H	H	H
CAP FWD/RVS	IC002 ㊿	O	L	H	L	H	L	H	H	L	L	* 8	* 9	H	L
DRUM ERR	IC002 ㊿	O	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10
CAP ERR	IC002 ㊿	O	L	* 10	* 10	* 10	* 10	* 10	* 10	* 10	L	* 10	* 10	* 10	L
DRUM ON *12	IC002 ㊿	O	L	H	H	H	H	H	H	H	H	H	H	H	H

- \* 1. The amplitude modulated pulse is input by the rotation of the reel.  
(200msec period during REC/PB mode)

\* 2. ATF error voltage input.

\* 3. One PG pulse is input by one rotation of the drum. Approximately 45Hz.

\* 4. Six FG pulses are input by one rotation of the drum. Approximately 270Hz.

\* 5. 360 FG pulses are input by one rotation of the capstan. Approximately 820Hz during REC/PB (SP) mode.

\* 6. Four frequencies are output as synchronized with the rotation of the drum.  
f1=102.54kHz, f2=118.95kHz, f3=165.21kHz, f4=148.69kHz
- \* 7. f2 (118.95kHz) is output.

\* 8. "High" pulse when tape is delivered.

\* 9. "Low" pulse when tape is delivered.

\* 10. PWM signal with a period of 21.5  $\mu$  sec.

\* 11. Normally "High". Temporarily "Low" when a full top cassette is loaded (drum reverse rotation).

\* 12. The "High" level is at approximately 1.3Vdc.

DE					
CH	PB • PAUSE	SLOW	REVERSE SLOW	REC	REC PAUSE
VIEW					
* 1	—	* 1	* 1	* 1	—
* 1	—	* 1	* 1	* 1	—
* 2	* 2	* 2	* 2	* 2	* 2
* 3	* 3	* 3	* 3	* 3	* 3
* 4	* 4	* 4	* 4	* 4	* 4
* 5	—	* 5	* 5	* 5	—
H	L	* 8	* 8	H	L
* 6	* 6	* 6	* 6	* 6	* 6
L	L	L	L	H	L
H	H	H	H	H	H
L	L	* 8	* 9	H	L
* 10	* 10	* 10	* 10	* 10	* 10
* 10	L	* 10	* 10	* 10	L
H	H	H	H	H	H

ut.  
 is delivered.  
 is delivered.  
 od of  $21.5 \mu$  sec.  
 orarily "Low" when a full top cassette is loaded (drum reverse  
 approximately 1.3Vdc.

## 4-8. MECHANICAL CONTROL MICROCOMPUTER CXP80624 (SS-144 BOARD IC002) PORT FUNCTION DESCRIPTION

Pin No.	Signal	I/O	Function
1	HEAD CHG	O	HEAD CHANGE Signal.
2	JOG VD	O	Pseudo VD signal to be inserted into playback video signal when speed change playback is performed.
3	N. C.	—	Not used.
4	JOG	O	Speed change playback/normal playback select signal for the video circuit. "High" to select speed change playback.
5	RP PB MODE	O	REC/PB select signal for REC/PB amplifier (RP-134 board IC001 ) and ATF servo IC (SS-144 board IC003). "High" to select PB mode.
6	FE ON	O	Flying erase oscillation ON/OFF control signal. "Low" to activate the oscillation.
7	INT VD OUT	O	Timing reference for serial data communication. V-cycle "Low" pulse.
8	SP/LP	O	SP/LP select signal. "Low" to select LP.
9	VIDEO CS	O	Serial data communication chip select signal to the video IC. V-Sycle "Low" pulse.
10	VA PB MODE	O	REC/PB select signal for the video circuit. "High" for PB mode.
11	MACRO DET	I	Not used.
12	10/7 SW	I	Not used.
13	EDIT	O	Video circuit characteristic select signal.
14	VIRS	O	Not used.
15	ME/MP SW	I	ME/MP switch input. "Low" for MP, "High" for ME.
16	MP/HG SW	I	Not used.
17	REC PROOF SW	I	REC PROOF switch input. "High" for protected REC.
18	MODE SW 2	I	Mechanical deck MATRIX input.
19	MODE SW 1	I	Mechanical deck MATRIX input.
20	MODE SW 0	I	Mechanical deck MATRIX input.
21	CC DOWN SW	I	Cassette compartment clock switch input. "Low" for lock.
22	10/13 SW	I	Not used.
23	CAP GAIN UP	O	Capstan speed control signal ("High" during FF/REW mode).
24	LOAD	O	Loading motor control signal. "High" or "High" pulse output to allow loading.
25	UNLOAD	O	Loading motor control signal. "High" or "High" pulse output to allow unloading.
26	FL M LOAD	O	Front loading motor control signal. "High" or "High" pulse output to allow loading.
27	FL M UNLD	O	Front loading motor control signal. "High" or "High" pulse output to allow unloading.
28	N. C.	—	Not used.
29	VI MUTE	O	Video mute signal.
30	AUDIO MUTE	O	Audio mute signal.
31	N.C.	—	Not used.
32	N.C.	—	Not used.
33	COPY	O	Not used.
34	CAM POS	O	Voice boost select signal. "Low" to turn on.
35	PAL V	O	Not used.
36	H18/NORMAL	O	Not used.
37	N.C.	—	Not used.
38	TOP END LED	O	ON/OFF signal for TAPE TOP/END LED.
39	MP	—	Connected to GND.
40	COSMO RESET	I	Reset signal. "Low" to reset.
41	VSS	—	GND
42	XTAL	O	11.89MHz clock oscillation circuit.
43	EXTAL	I	

Pin No.	Signal	I/O	Function
44	COSMO CS	I	Clip select signal from the mode control micromputer. V-cycle "Low" pulse.
45	SERIAL IN	I	Serial date input.
46	SERIAL OUT	O	Serial date output.
47	SCK	O	Serial clock output.
48	ME/MP	O	ME/MP select signal output. "Low" when MP Tape is used.
49	N. C.	—	GND
50	INSEL 1	O	Not used.
51	INSEL 2	O	Not used.
52	A VSS	—	GND
53	AVREF	—	Analog board reference voltage. Connected to +5V.
54	AVDD	—	Analog board power (+5V).
55	TOP SENS	I	Tape top sensing signal. This is normally "Low" and switches to "High" pulse input at tape top.
56	END SENS	I	Tape end sensing signal. This is normally "Low" and switches to "High" pulse input at tape end.
57	T REEL FG	I	T reel FG signal input.
58	S REEL FG	I	S reel FG signal input.
59	H18 DET	I	Not used.
60	AFM MODE DET	I	Not used.
61	ATF ERROR	I	ATF error, ATF lock error input.
62	S SW 3	I	Not used.
63	S SW 2	I	Not used.
64	S SW 1	I	Not used.
65	CLOG DET	I	This determines whether playback RF is present or not. "Low" under normal condition.
66	COMP SYNC	I	Composite sync signal separated form record/playback Y signal.
67	SP/LP DET	I	This determines which record mode the playback tape has when CUE/REVIEW/FF/REW mode is entered.
68	DRUM PG	I	Drum PG signal input. Used for the drum phase servo. 22.2msec periodic "High" pulse.
69	DRUM FG	I	Drum FG signal input. Used for the drum speed servo. 3.7msec periodic pulse.
70	CAP FG	I	Capstan FG signal input. Approximately 948Hz during REC/PB mode for the capstan speed servo.
71	N. C.	—	+5V power.
72	DRUM ON	O	Not used.
73	CAP ERR H	O	Not used.
74	DRUM ERR	O	Drum error signal output.
75	CAP ERR	O	Capstan error signal output. 20.15μsec PWM signal.
76	DRUM FWD/RVS	O	Drum rotational direction control signal. Normally "High".
77	HMS CAP FG	O	Capstan FG signal input. Used tape counter.
78	N.C.	I	+5V power.
79	MPHG/MP	O	Not used.
80	S/VIDEO	O	Not used.
81	N.C.	—	Not used.
82	AFM OUTSEL	O	Not used.
83	AFM MODE	O	Not used.

re playback  
"High" to  
F servo IC  
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pulse.  
g.  
ling.  
ading.  
loading.

Pin No.	Signal	I/O	Function
44	COSMO CS	I	Clip select signal from the mode control micromputer. V-cycle "Low" pulse.
45	SERIAL IN	I	Serial date input.
46	SERIAL OUT	O	Serial date output.
47	SCK	O	Serial clock output.
48	ME/MP	O	ME/MP select signal output. "Low" when MP Tape is used.
49	N. C.	—	GND
50	INSEL 1	O	Not used.
51	INSEL 2	O	Not used.
52	A VSS	—	GND
53	AVREF	—	Analog board reference voltage. Connected to +5V.
54	AVDD	—	Analog board power (+5V).
55	TOP SENS	I	Tape top sensing signal. This is normally "Low" and switches to "High" pulse input at tape top.
56	END SENS	I	Tape end sensing signal. This is normally "Low" and switches to "High" pulse input at tape end.
57	T REEL FG	I	T reel FG signal input.
58	S REEL FG	I	S reel FG signal input.
59	HI8 DET	I	Not used.
60	AFM MODE DET	I	Not used.
61	ATF ERROR	I	ATF error, ATF lock error input.
62	S SW 3	I	Not used.
63	S SW 2	I	Not used.
64	S SW 1	I	Not used.
65	CLOG DET	I	This determines whether playback RF is present or not. "Low" under normal condition.
66	COMP SYNC	I	Composite sync signal separated form record/playback Y signal.
67	SP/LP DET	I	This determines which record mode the playback tape has when CUE/REVIEW/FF/REW mode is entered.
68	DRUM PG	I	Drum PG signal input. Used for the drum phase servo. 22.2msec periodic "High" pulse.
69	DRUM FG	I	Drum FG signal input. Used for the drum speed servo. 3.7msec periodic pulse.
70	CAP FG	I	Capstan FG signal input. Approximately 948Hz during REC/PB mode for the capstan speed servo.
71	N. C.	—	+5V power.
72	DRUM ON	O	Not used.
73	CAP ERR H	O	Not used.
74	DRUM ERR	O	Drum error signal output.
75	CAP ERR	O	Capstan error signal output. 20.15μsec PWM signal.
76	DRUM FWD/RVS	O	Drum rotational direction control signal. Normally "High".
77	HMS CAP FG	O	Capstan FG signal input. Used tape counter.
78	N.C.	I	+5V power.
79	MPHG/MP	O	Not used.
80	S/VIDEO	O	Not used.
81	N.C.	—	Not used.
82	AFM OUTSEL	O	Not used.
83	AFM MODE	O	Not used.

Pin No.	Signal	I/O	Function
84	AUDIO PB	O	REC/PB select signal for the audio circuit. "High" for PB mode.
85	REF PILOT	O	Reference pilot signal for the ATF seruo. Four frequencies are selectively switched from one to another as synchronized with the rotation of the drum. $f_1=102.52\text{kHz}$ , $f_2=118.95\text{kHz}$ , $f_3=165.21\text{kHz}$ , $f_4=148.69\text{kHz}$ .
86	N. C.	—	N. C
87	N. C.	—	Connected to GND.
88	VSS	—	GND.
89	VDD	—	+5V power.
90	VPP	—	+5V power.
91	CAP ON	O	Capstan driver ON/OFF control signal. "High" to turn capstan ON.
92	CAP FWD/RVS	O	Capstan rotational direction control signal. "High" for FWD. "Low" for RVS.
93	DRUM ACCEL	O	Drum acceleration pulse.
94	DRUM BRAKE	O	Drum deceleration pulse.
95	PCM AFREC	O	Not used.
96	PCM REC INH	O	Not used.
97	FE RA	O	Not used.
98	PCM PB	O	Not used.
99	RF SWP	O	RF switching pulse signal.30Hz,50% duty pulse.
100	VI SWP	O	Video switching pulse.

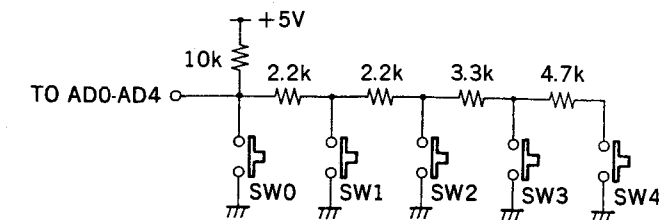
## 4-9. MODE CONTROL MICRO COMPUTER MB89093 (LC-38 BOARD IC101) PORT FUNCTION DESCRIPTION

Pin No.	Signal	I/O	Function
1	TEST MODE 1	I	Connected to GND.
2	TEST MODE 2	I	Connected to GND.
3	X0		System clock (10MHz).
4	X1		System clock (10MHz).
5	VSS	I	+5V power.
6	RESET	I	Reset input.
7	PAL/NT	I	PAL/NTSC select. "Low" for NTSC.
8	J/UC	I	J/UC select. "Low" for UC.
9-15	N.C.	I	No connected.
16	INT V	I	V synchronization signal input.
17	LANC POWER CONT	O	"Low" output when power off, LANC M.
18	LANC POWER ON	I	LANC POWER control signal input.
19-22	N.C.	I	No connected.
23	MAIN LED	O	Not used.
24	VTR LED	O	LED lighting up on "Low".
25	VOICE BOOST LED	O	VOICE BOOST LED lighting up on "Low".
26	—	I	Connected to VCC.
27	N.C.	I	No connected.
28	SP DATA	O	Sift register. Data output.
29	SP CLK	O	Sift register. Clock output.
30	SIRCS IN	I	SIRCS input.
31	SP STR	O	Sift register. Strobe output.
32	SP OE	O	Sift register. OE output.
33	SUB LED	O	Not used.
34-46	N.C.	I	No connected.
47	VCC	I	+5V power.
48-55	S0-S7	O	LCD display SEGMENT signal output. 0-7
56	VSS	—	GND
57-64	S8-S15	O	LCD display SEGMENT signal output. 8-15
65-68	V3-V0	I	LCD drive power terminal.
69-71	C0-C2	O	LCD display common signal. 0-2
72	—	O	No connected.
73	N.C.	—	No connected.
74	COSMO CS	O	Serial communication BUS.
75	TT SI	I	Serial communication BUS.
76	TT SO	O	Serial communication BUS.
77	TT SCK	O	Serial communication BUS.
78	COSMO RST	O	Serial communication BUS.
79	N.C.	—	No connect.
80	N.C.	—	No connect.
81	AVSS	—	Analog GND.
82-86	AD0-AD4	I	KEY input.
87	LANC S/M	I	LANC mode slave/master select. "Low" for slave.

Pin No.	Signal	I/O	Function
88	AD6	I	Not used.
89	RF SW POSI 1	I	RF SWP position adjustment VR1 input.
90	AVCC	—	Analog power.
91	RF SW POSI 2	I	RF SWP position adjustment VR2 input.
92	×2 ON	O	"H" output when ×2 mode.
93	TV/VTR	O	TV/VTR ANT select. "H" when VTR.
94	POWER ON	O	Power control signal. "H" when power is on.
95	LANC IN	I	LANC DATA input.
96	LANC OUT	O	LANC DATA output.
97	N.C.	—	No connected.
98	VCC	—	+5V power.
99	—	—	No connected.
100	—	—	No connected.

## ● A/D PORT ALLOCATION

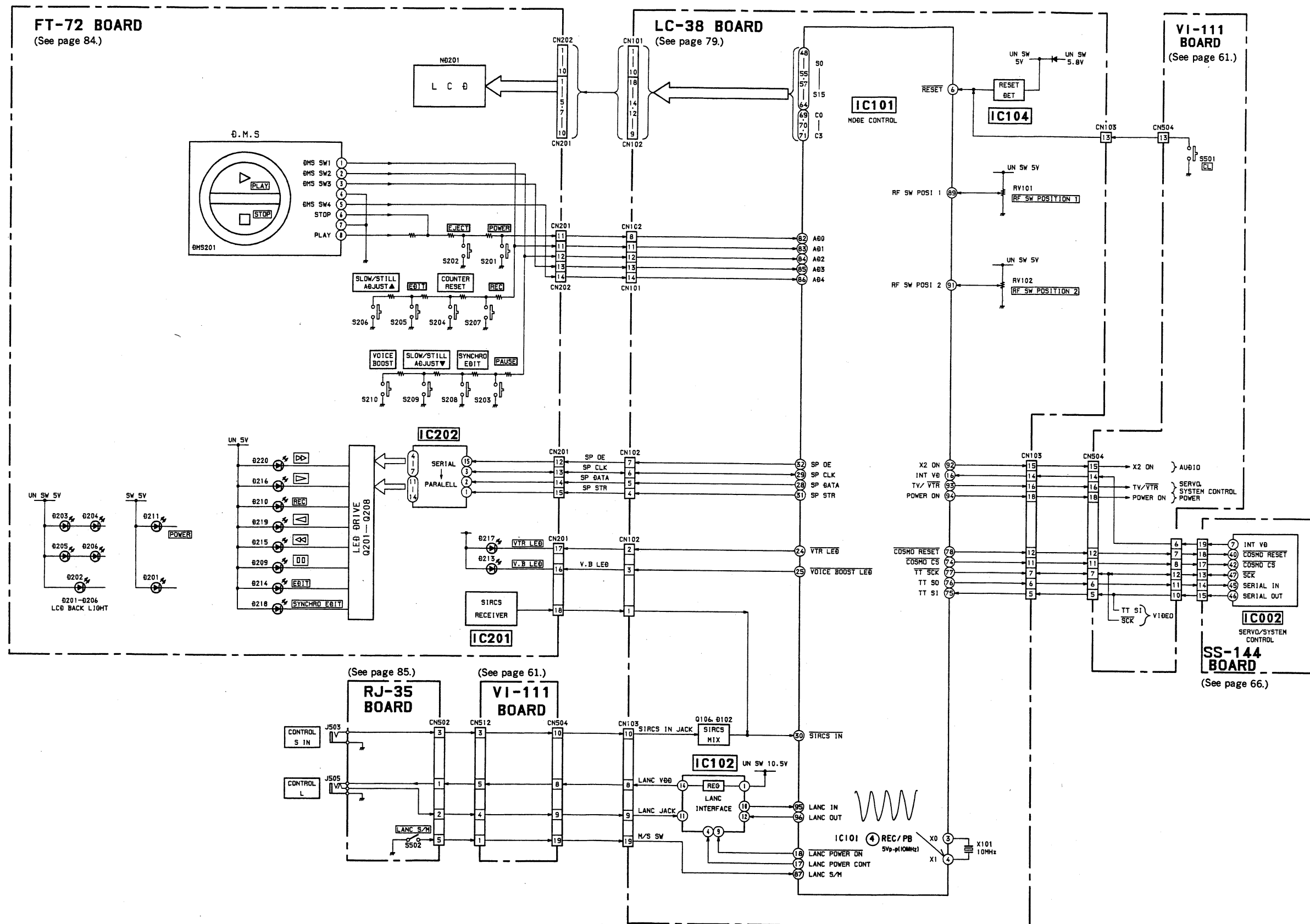
- The A/D ports are allocated as shown below.



SW	Pin No.	SW0 0.01 [V]	SW1 0.9 [V]	SW2 1.5 [V]	SW3 2.2 [V]	SW4 2.8 [V]	NO INPUT 5.0 [V]
AD0	82	POWER	EJECT	STOP	PLAY	—	—
AD1	83	DMS SW1	REC	COUNTER RESET	EDIT	SLOW/STILL ADJUST ▼	—
AD2	84	DMS SW2	PAUSE	SYNCHRO EDIT	SLOW/STILL ADJUST ▲	VOICE BOOST	—
AD3	85	DMS SW3	—	—	—	—	—
AD4	86	DMS SW4	—	—	—	—	—
AD5	87	CONTROL L S/M	—	—	—	—	—

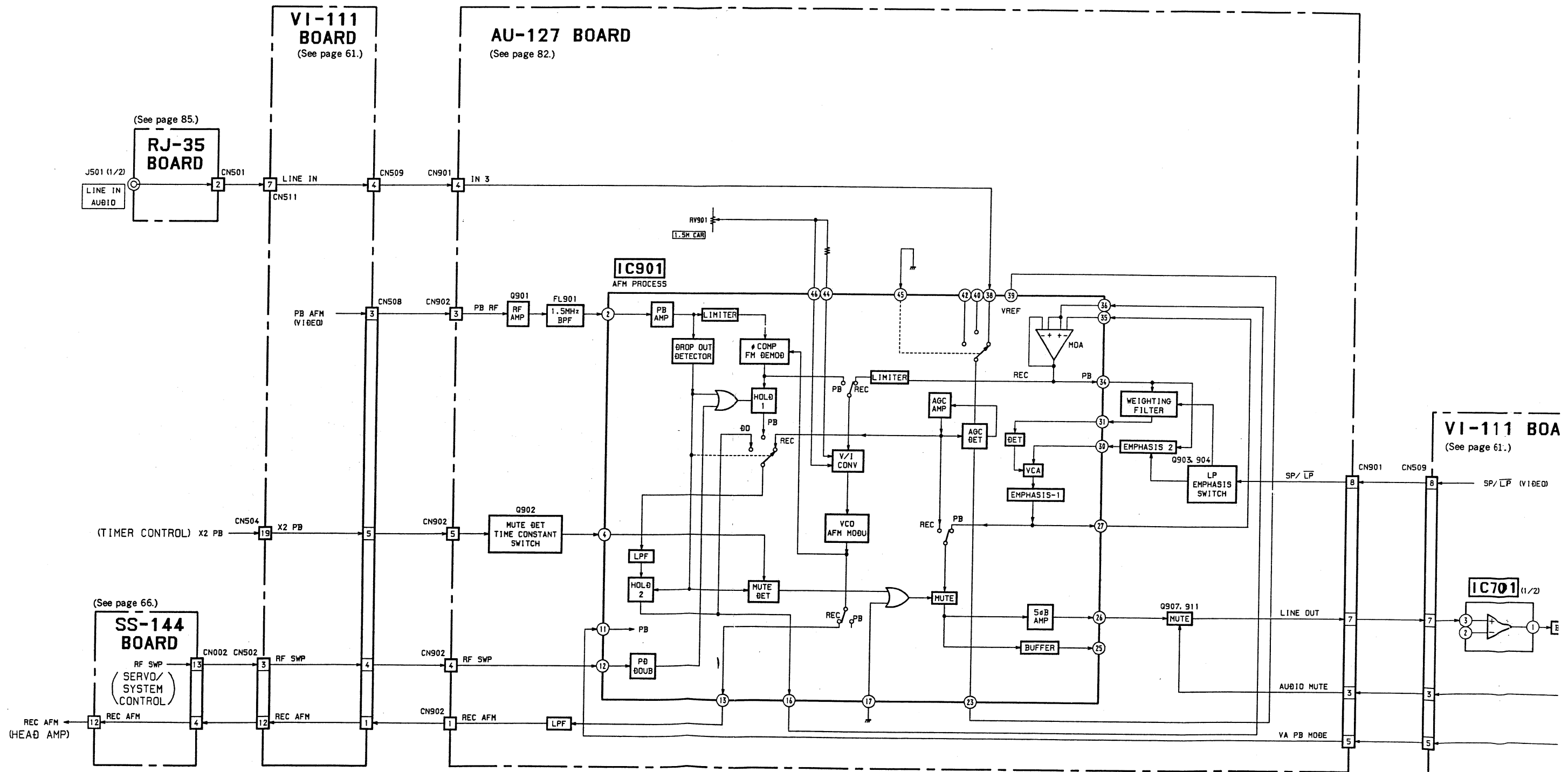
- KEY input signals pass through the A/D ports as shown above.

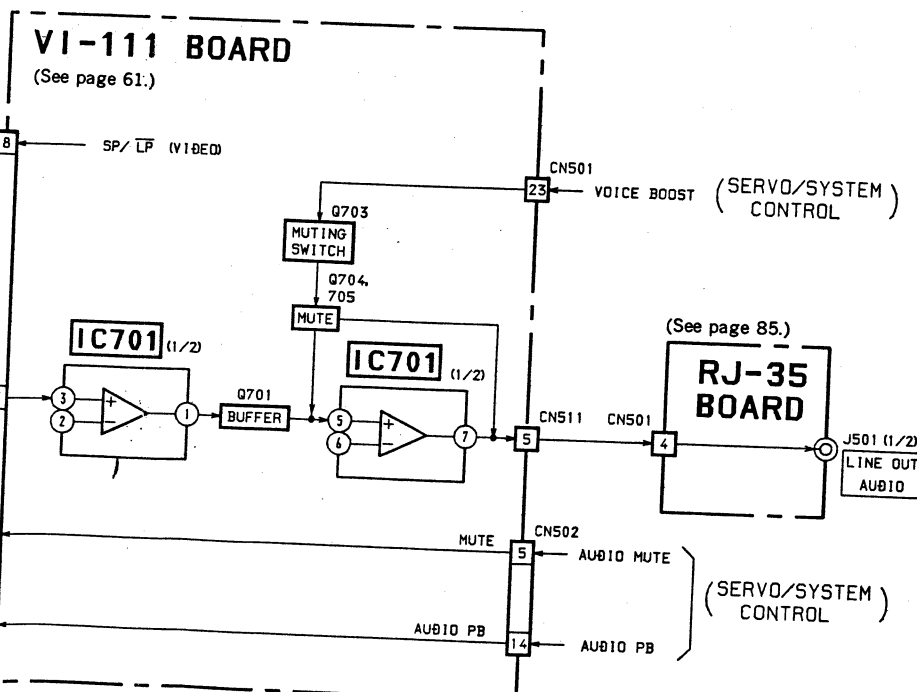
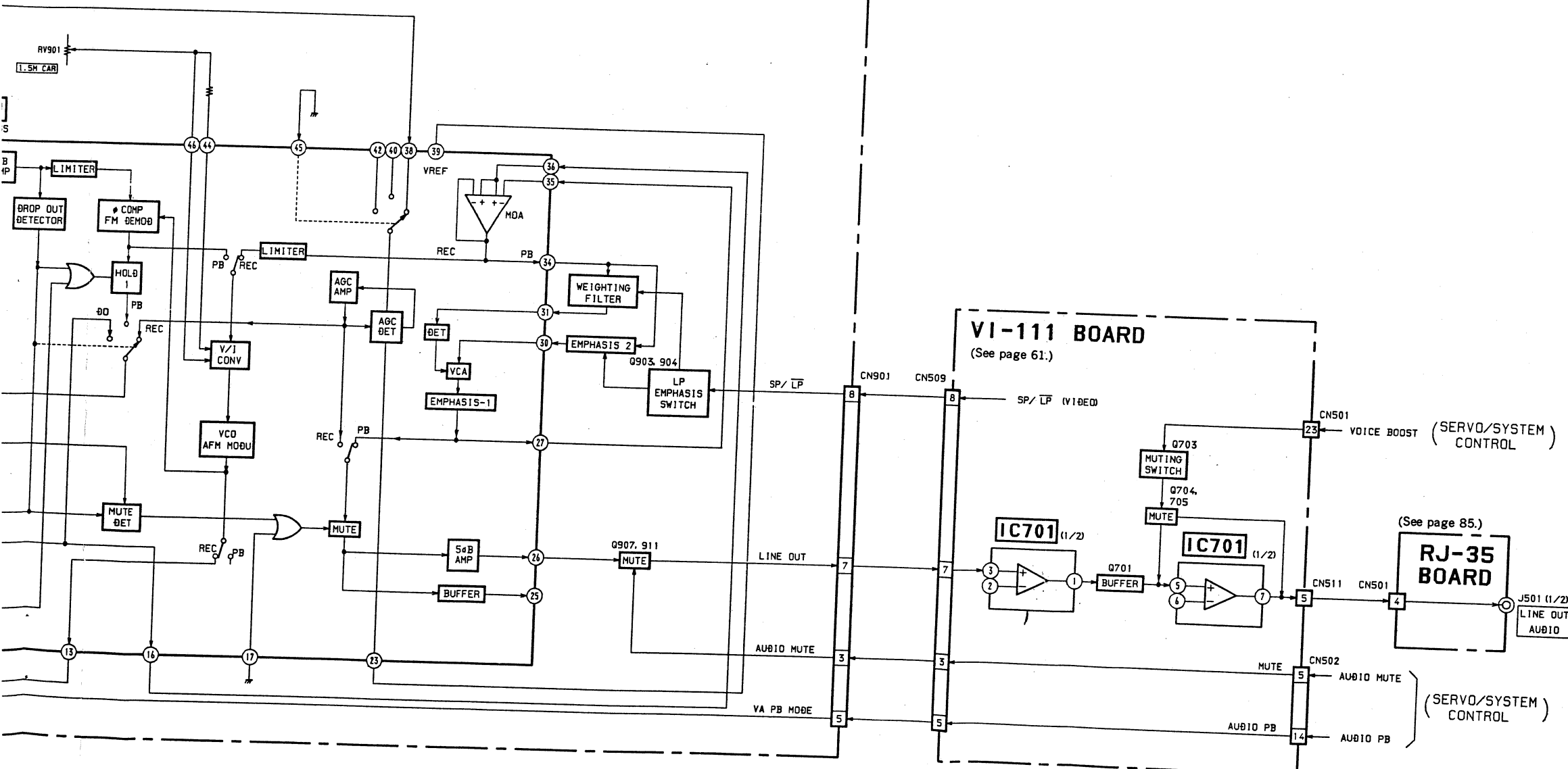
#### 4-10. MODE CONTROL BLOCK DIAGRAM



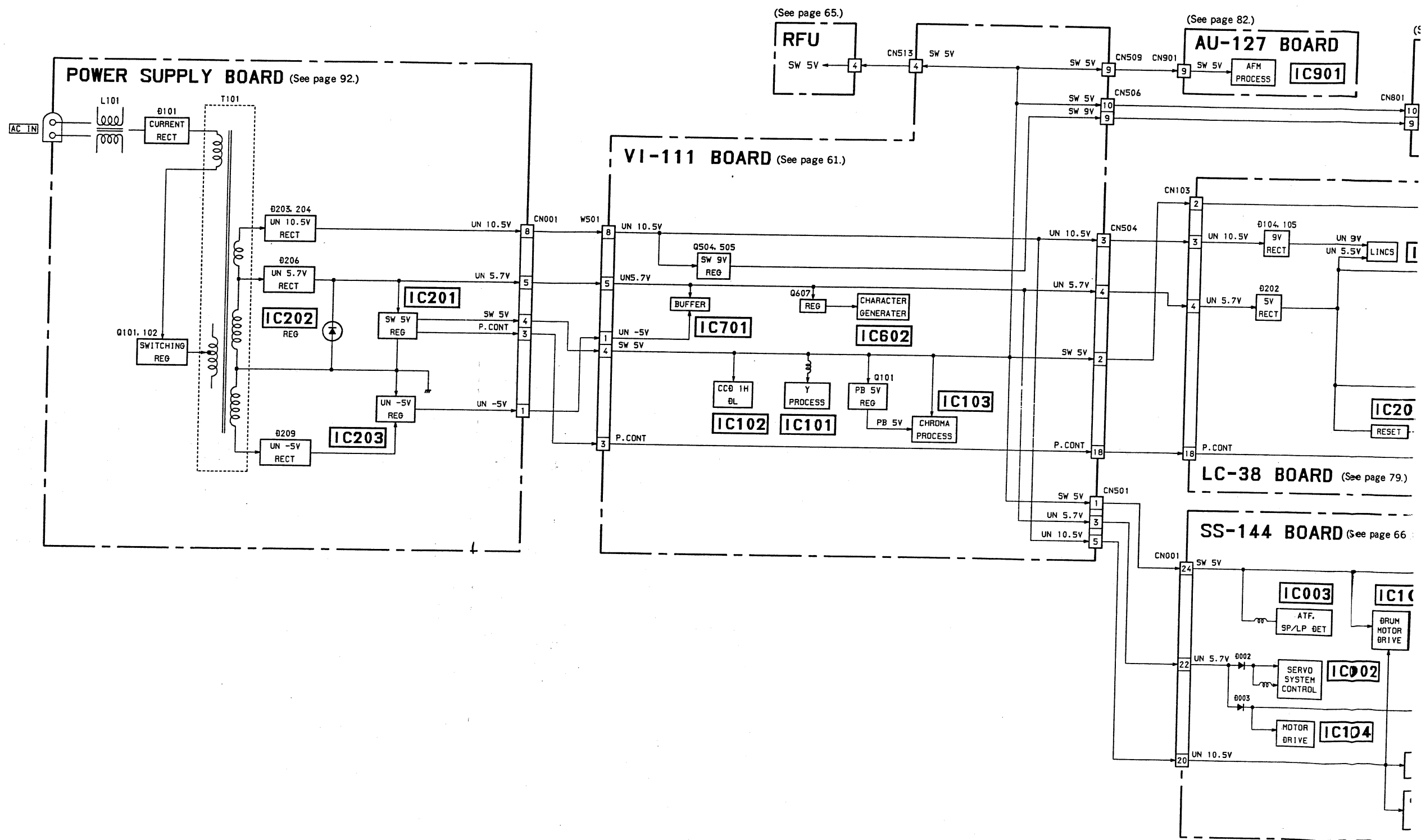


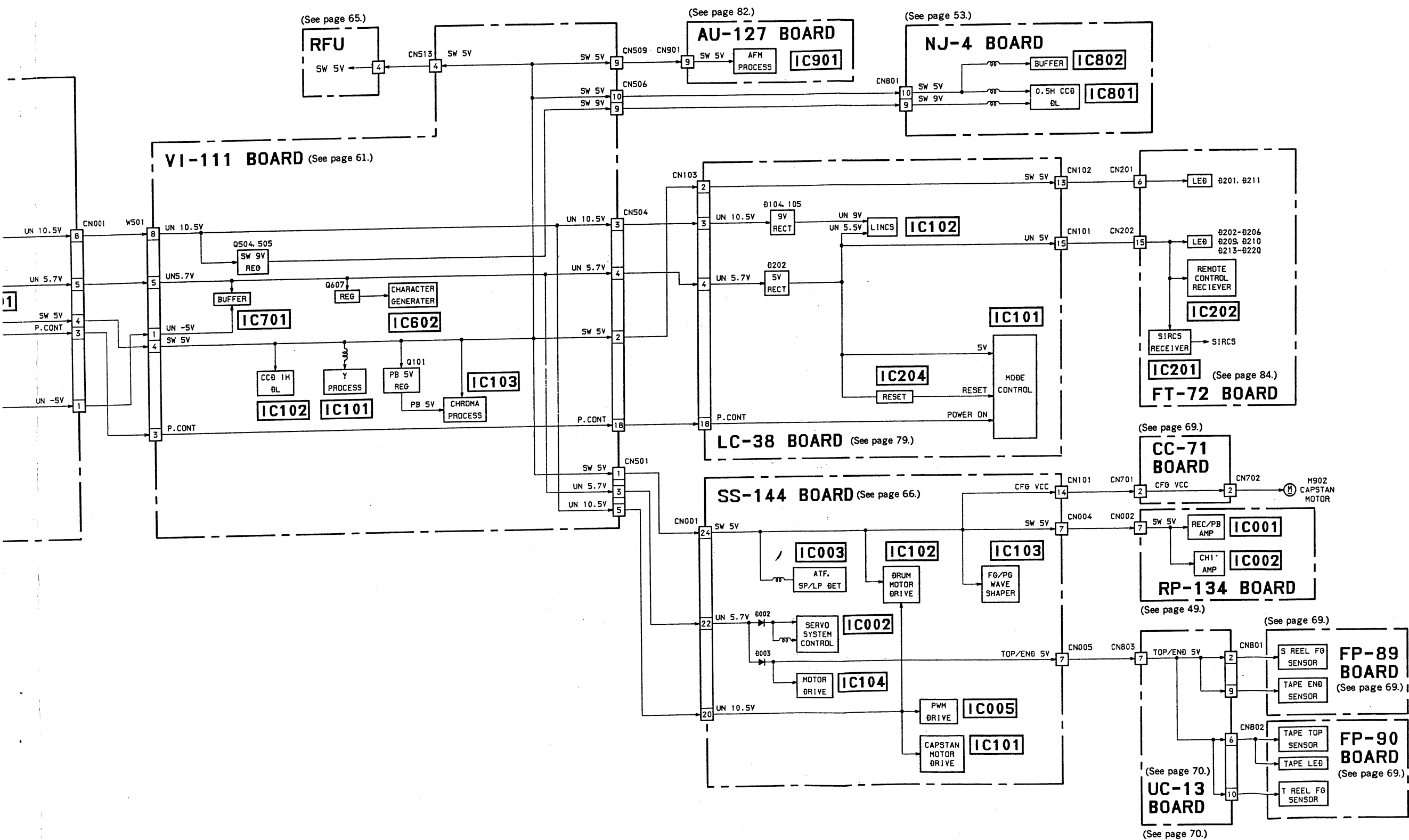
# 4-11. AUDIO BLOCK DIAGRAM





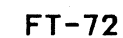
4-12. POWER BLOCK DIAGRAM

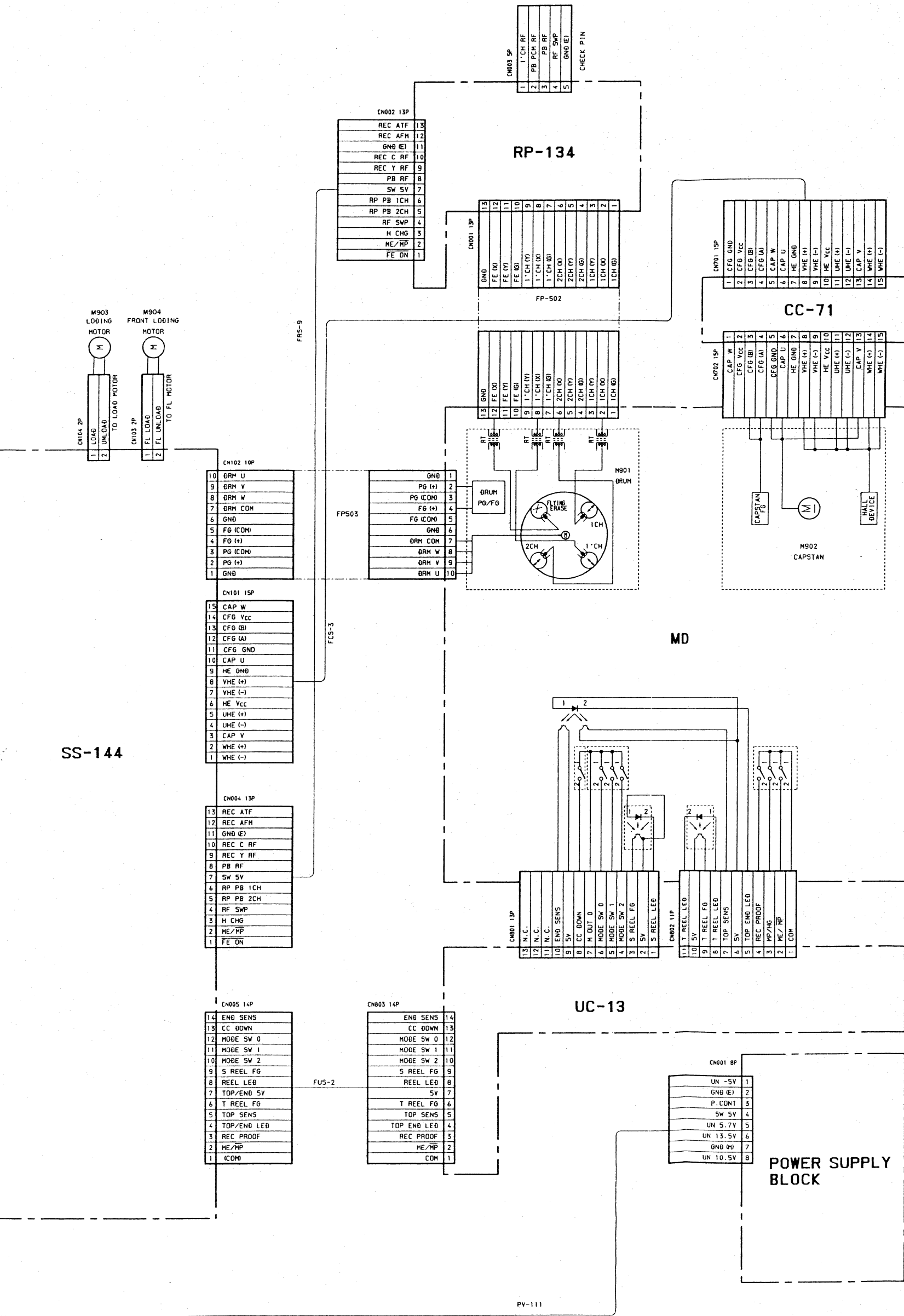




### 5-1. FRAME SCHEMATIC DIAGRAM







5-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS  
(In addition to this, the necessary note is printed in each block.)

- For printed wiring boards.
- : Through hole.  
(RP-134, NJ-4, VI-111, SS-144, CC-71, UC-13, AU-127 Boards)
- : Pattern from the side which enables seeing.
- Circled numbers refer to waveforms.
- For schematic diagram.
- Caution when replacing chip parts.  
New parts must be attached after removal of chip.  
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
- Chip resistor are 1/8W or 1/10W unless otherwise noted.  
k $\Omega$ : 1000 $\Omega$ , M $\Omega$ : 1000k $\Omega$ .
- All capacitors are in  $\mu$ F unless otherwise noted. pF:  $\mu$  $\mu$ F.  
50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- $\Delta$  : internal component.
- : adjustment for repair
- B + Line
- B - Line
- IN/OUT direction of (+, -) B line
- Circled numbers refer to waveforms.
- Voltages are dc between ground and measurement points
- Readings are taken with a color-bar signal input
- Readings are taken with a digital multimeter (DC10M $\Omega$ )
- Voltage variations may be noted due to normal production tolerances.

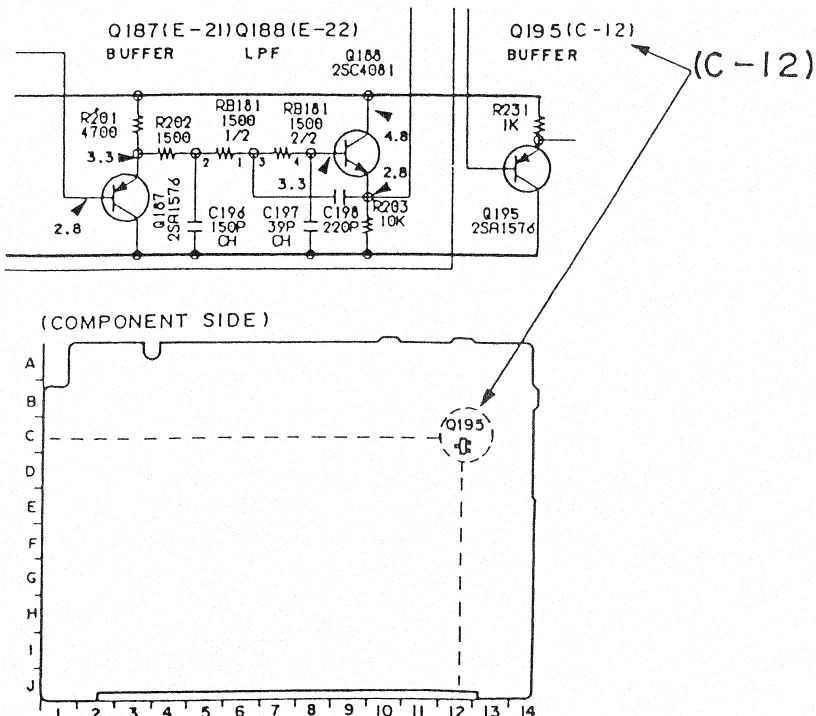
Note:  
The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Note:  
Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

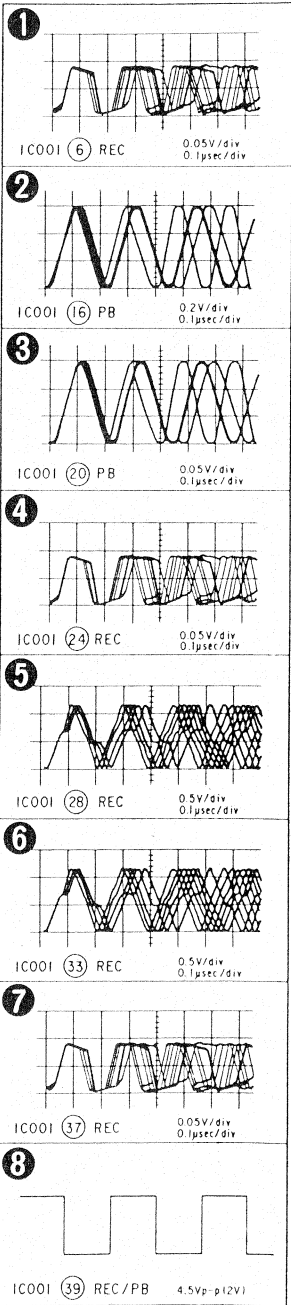
When indicating parts by reference number, please include the board name.

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red as shown below. This enables to find the location on the board easily when servicing.



RP-134 BOARD

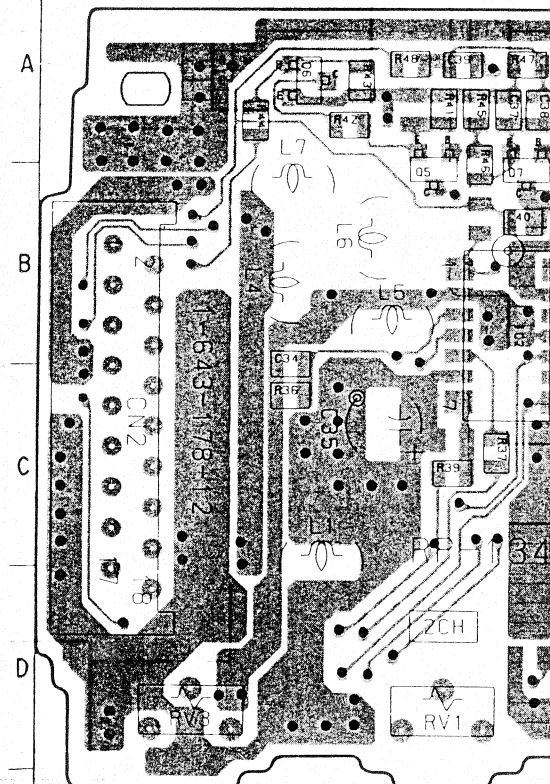


< IC >  
IC001 8-752-032-35 CXA1202Q-Z  
IC002 8-759-062-52 CXA1443M

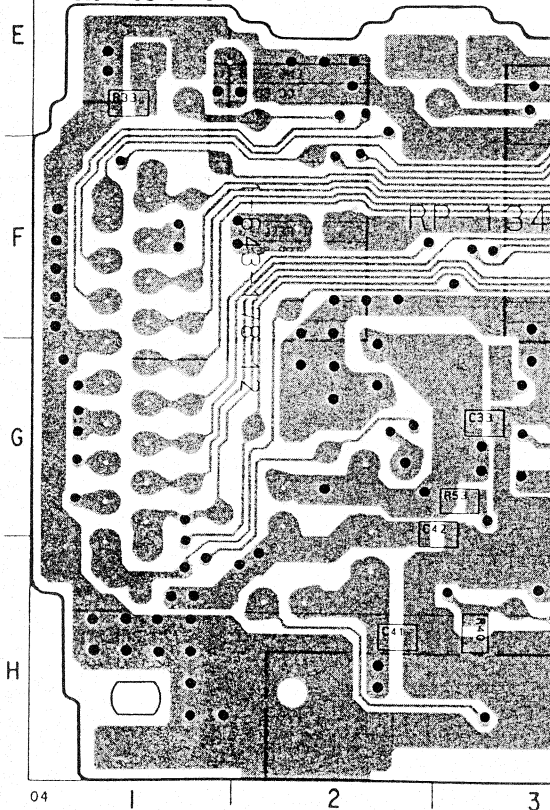
< TRANSISTOR >  
Q003 8-729-422-36 2SB709A-Q  
Q005 8-729-216-22 2SA1162-Q  
Q006 8-729-422-36 2SB709A-Q  
Q007 8-729-422-36 2SB709A-Q  
Q008 8-729-421-19 UN2213  
Q009 8-729-424-18 UN2113

RP-134 (HEAD AMP) PRINTED WIRING BOARD  
—Ref. No. RP-134 BOARD : 1000 series—

RP-134 BOARD (COMPONENT SIDE)



RP-134 BOARD (CONDUCTOR SIDE)



● : Through hole.



< TRANSISTOR >

Q003	8-729-422-36	2SB709A-Q
Q005	8-729-216-22	2SA1162-Q
Q006	8-729-422-36	2SB709A-Q
Q007	8-729-422-36	2SB709A-Q
Q008	8-729-421-19	UN2213
Q009	8-729-424-18	UN2113

● : Through hole.

• Signal path

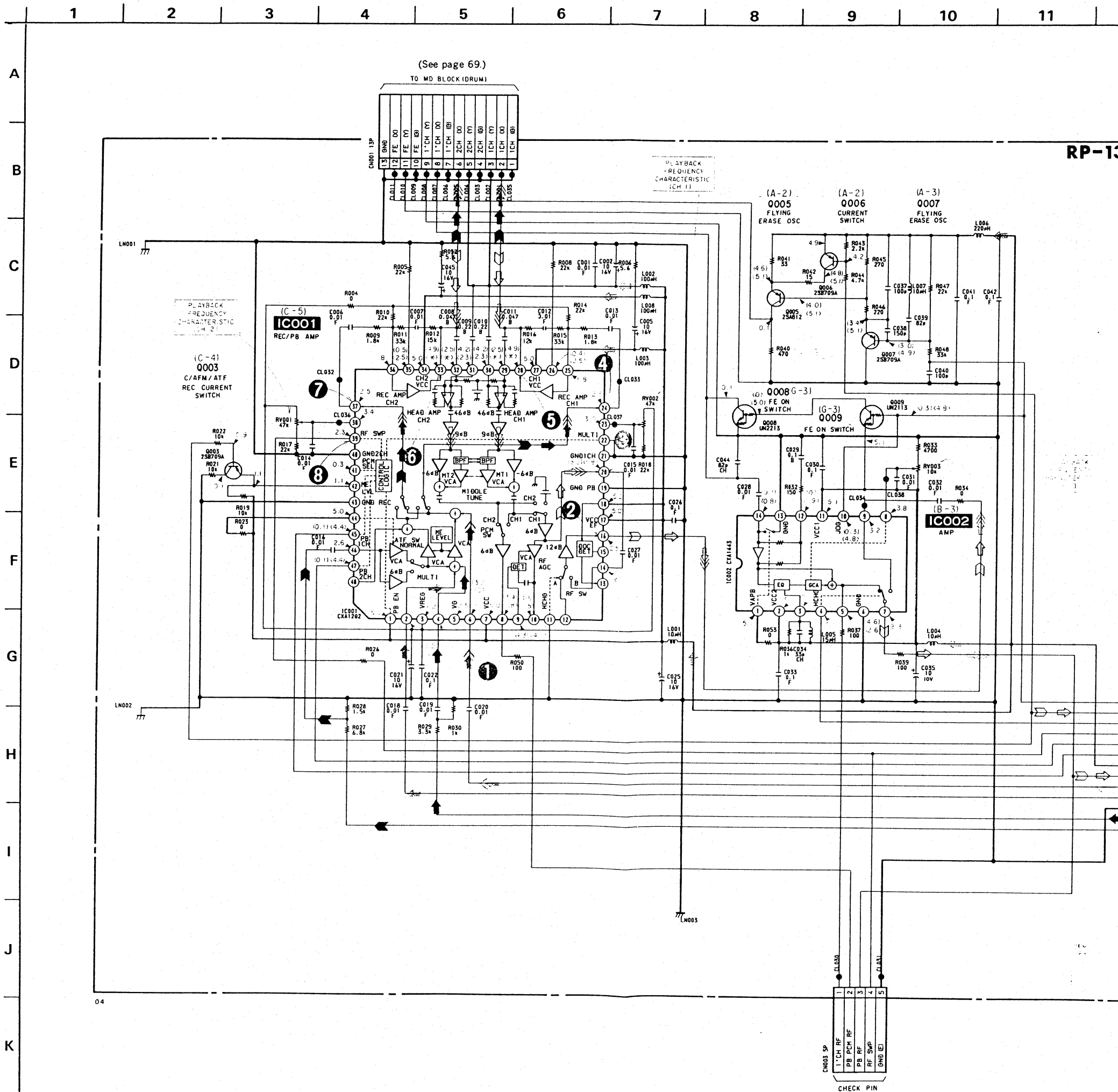
	VIDEO Signal			A
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	
PB	➡	➡➡	➡➡➡	

• Signal path

	REC	REC
Ref. signal	➡	

RP-134 (HEAD AMP) SCHEMATIC DIAGRAM

—Ref. No. RP-134 BOARD : 1000 series—



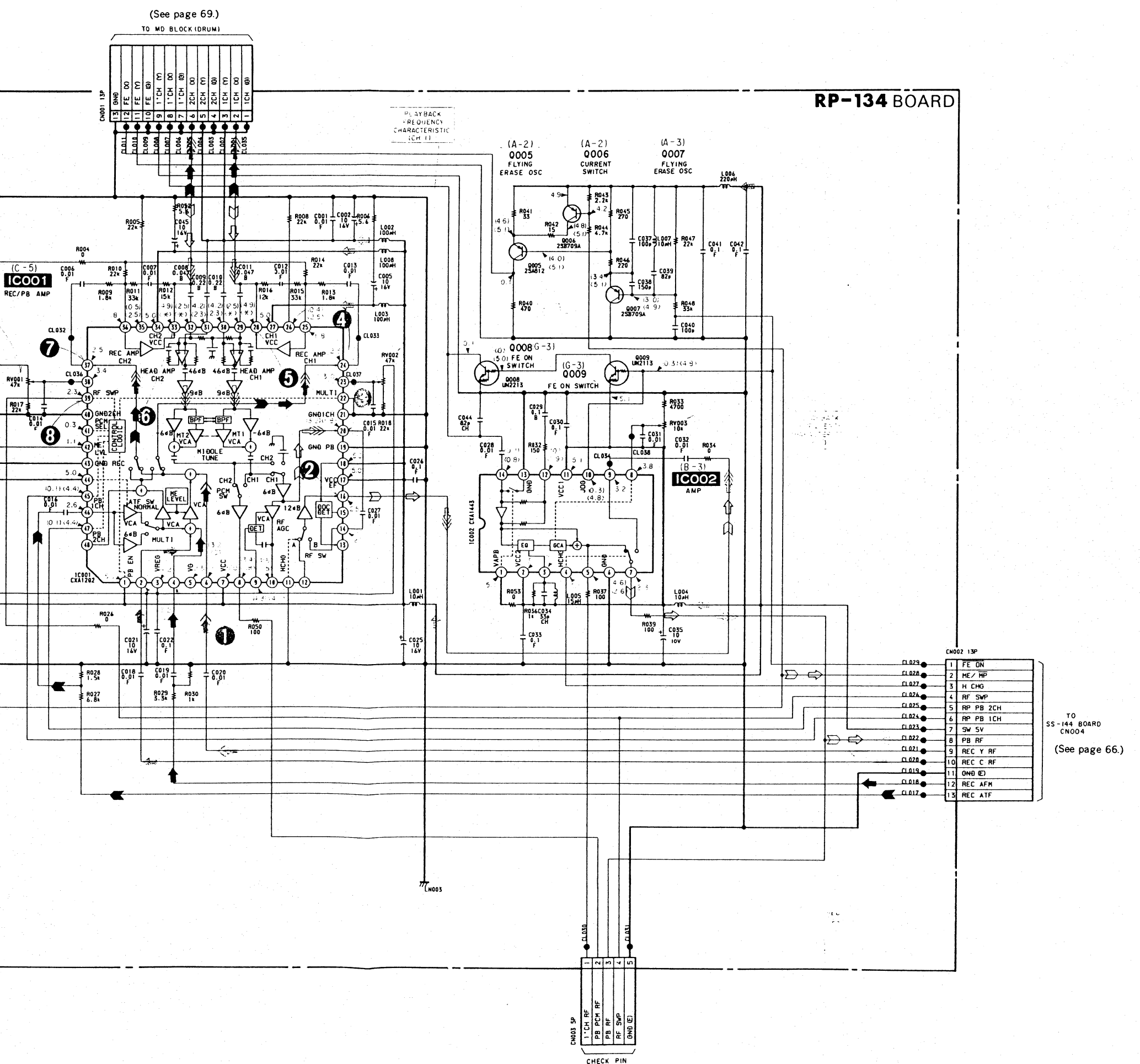
• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	➡	➡➡	➡➡➡	➡

• Signal path

	REC	REC/PB	PB
Ref. signal	➡		➡

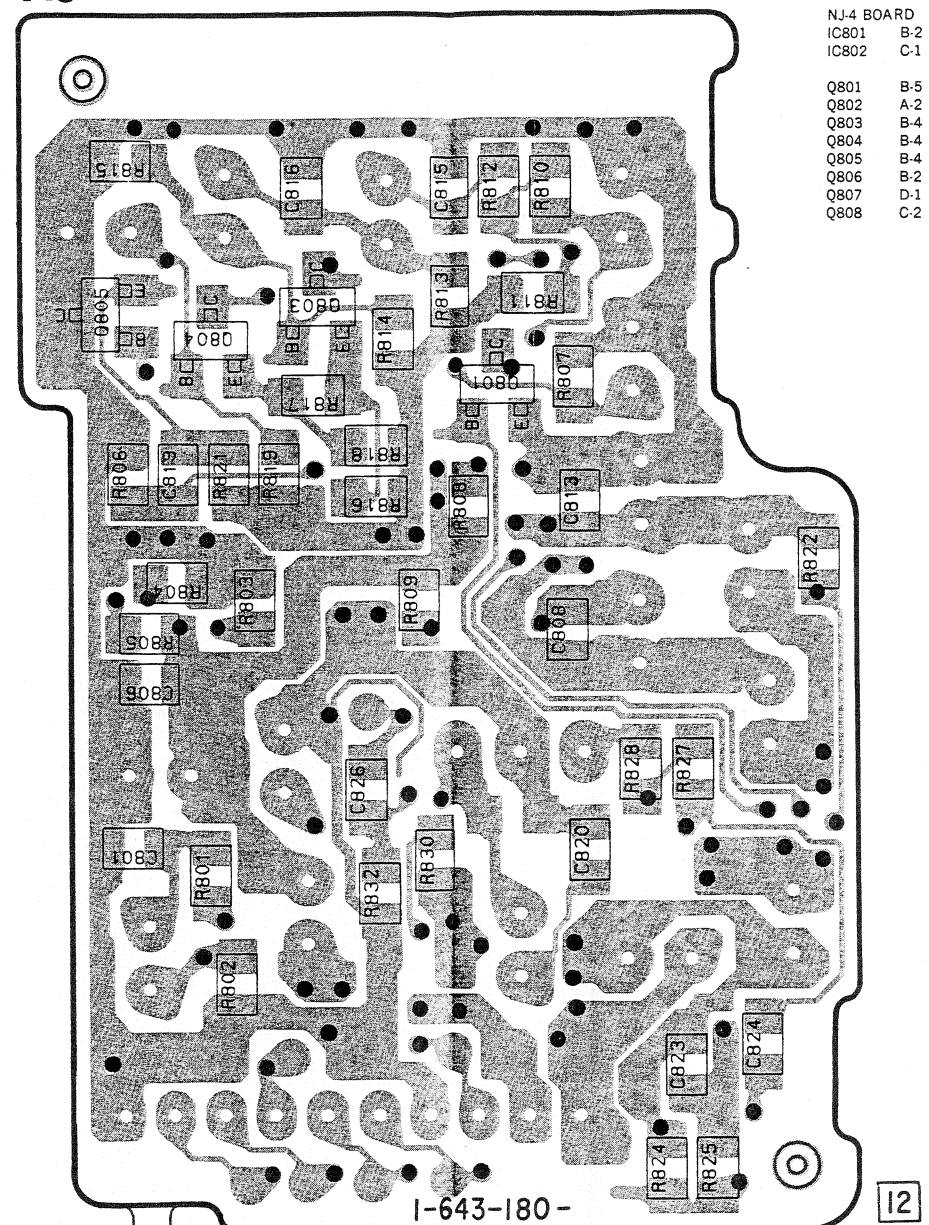
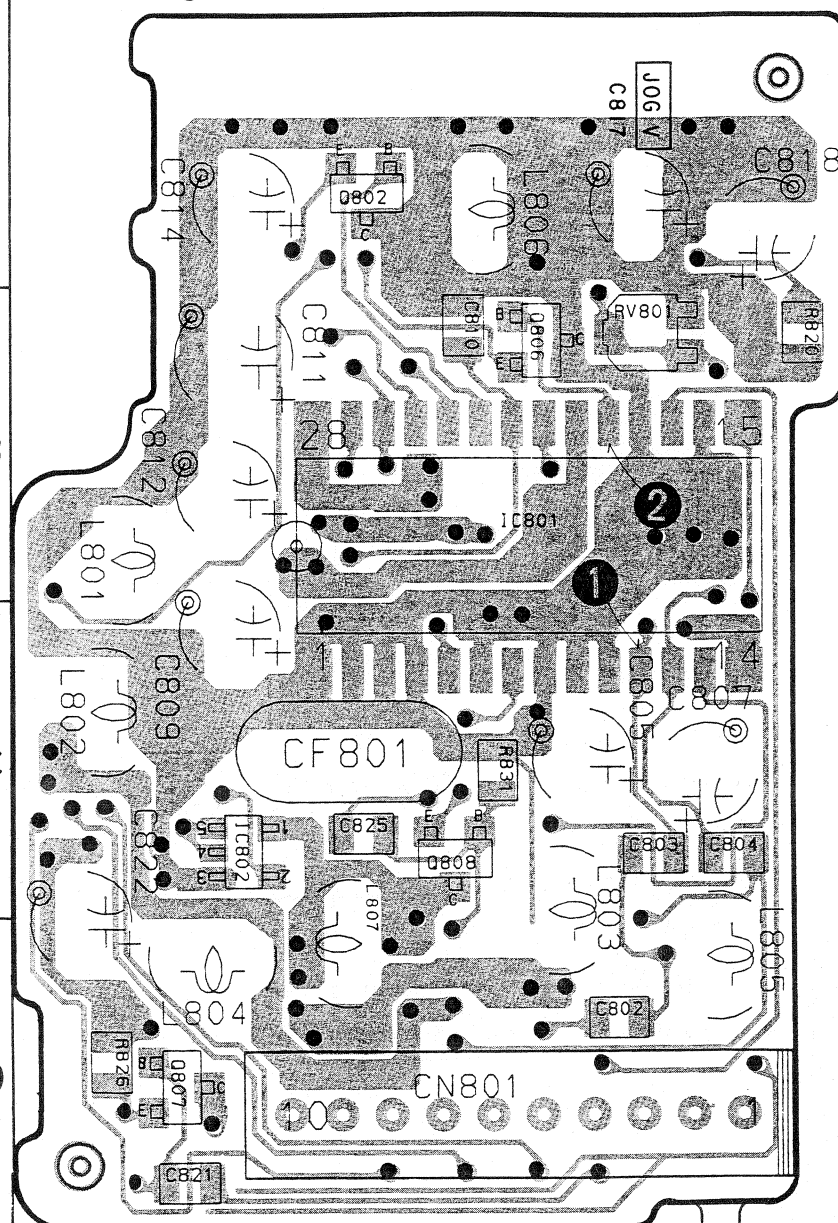
4 5 6 7 8 9 10 11 12 13 14



HEAD AMP HEAD AMP

—Ref.No. NJ-4 BOARD : 1000 series—

### NJ-4 BOARD(CONDUCTOR SIDE)



Q801	B-5
Q802	A-2
Q803	B-4
Q804	B-4
Q805	B-4
Q806	B-2
Q807	D-1
Q808	C-2

Q801 8-729-421-19 UN2213  
Q802 8-729-422-36 2SB709A-Q  
Q803 8-729-422-36 2SB709A-Q  
Q804 8-729-422-36 2SB709A-Q  
Q805 8-729-422-36 2SB709A-Q

Q806 8-729-422-36 2SB709A-Q  
Q807 8-729-422-27 2SD601A-Q  
Q808 8-729-422-27 2SD601A-Q

1-643-180-

12

: Through hole.



—Ref.No. NJ-4 BOARD: 1000 series—

—Ref.No. NJ-4 BOARD: 1000 series—



(B-5)  
Q801  
SWITCH

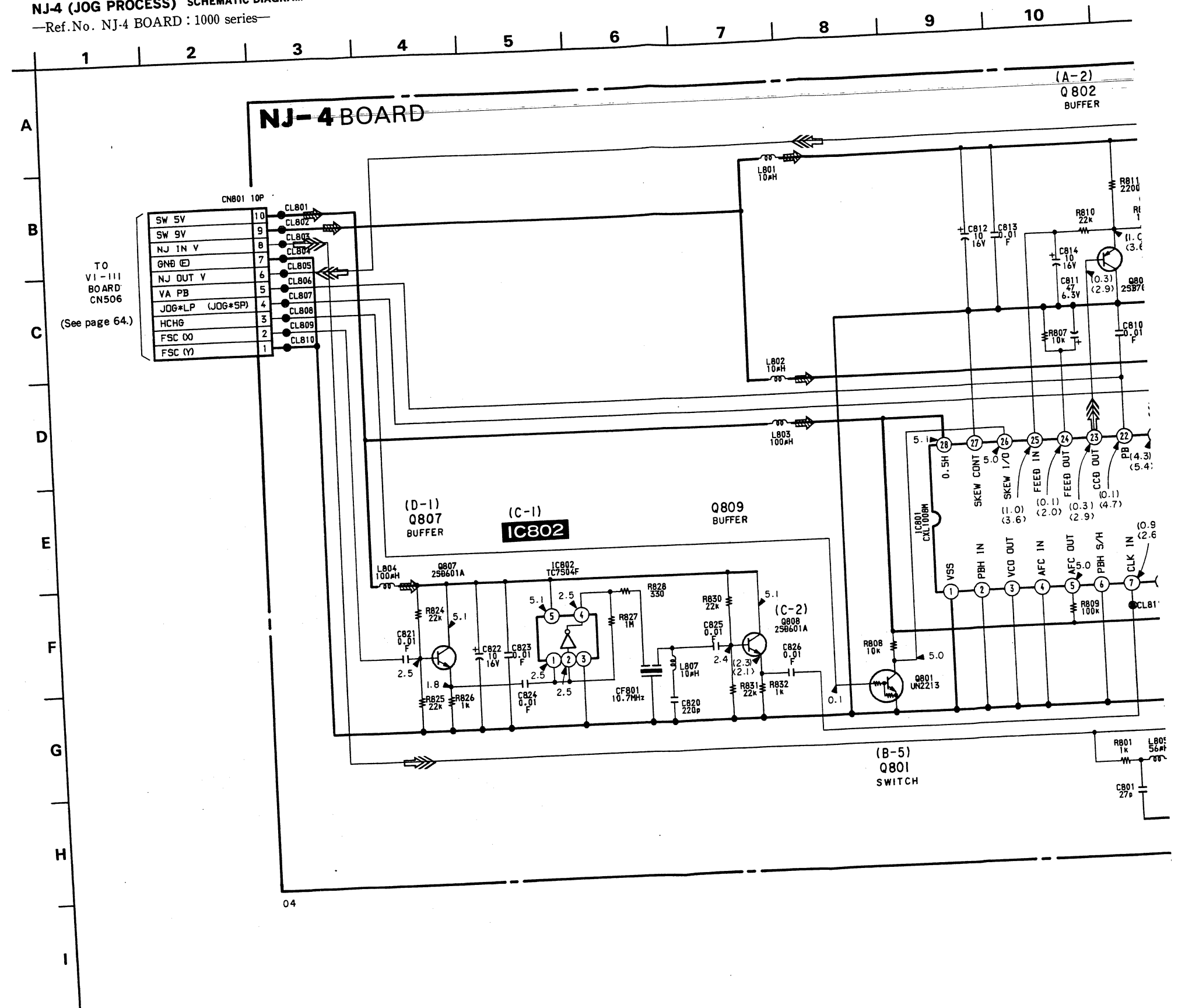
**NJ-4 (JOG PROCESS) SCHEMATIC DIAGRAM**  
 —Ref.No. NJ-4 BOARD : 1000 series—

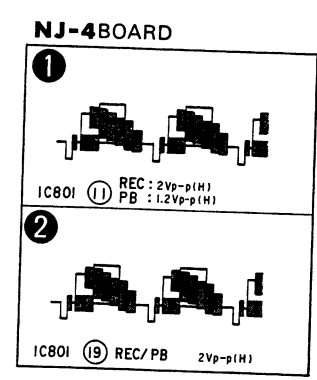
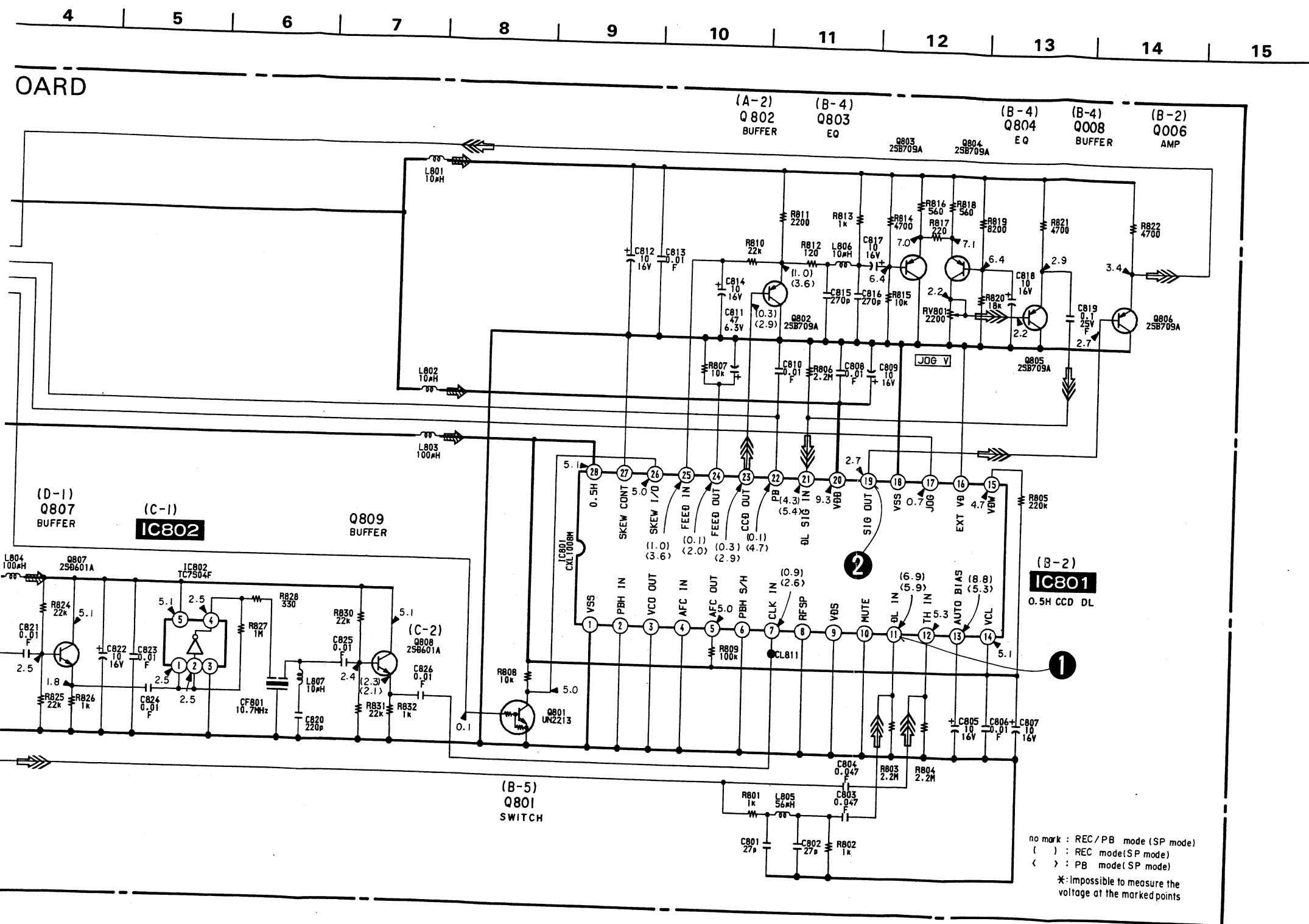
4 BOARD  
 01 B-2  
 02 C-1  
 03 B-5  
 04 A-2  
 05 B-4  
 06 B-4  
 07 B-2  
 08 D-1  
 09 C-2

< IC >  
 IC801 8-752-322-24 CXL1008M  
 IC802 8-759-031-84 SC7S04F

< TRANSISTOR >  
 Q801 8-729-421-19 UN2213  
 Q802 8-729-422-36 2SB709A-Q  
 Q803 8-729-422-36 2SB709A-Q  
 Q804 8-729-422-36 2SB709A-Q  
 Q805 8-729-422-36 2SB709A-Q

Q806 8-729-422-36 2SB709A-Q  
 Q807 8-729-422-27 2SD601A-Q  
 Q808 8-729-422-27 2SD601A-Q



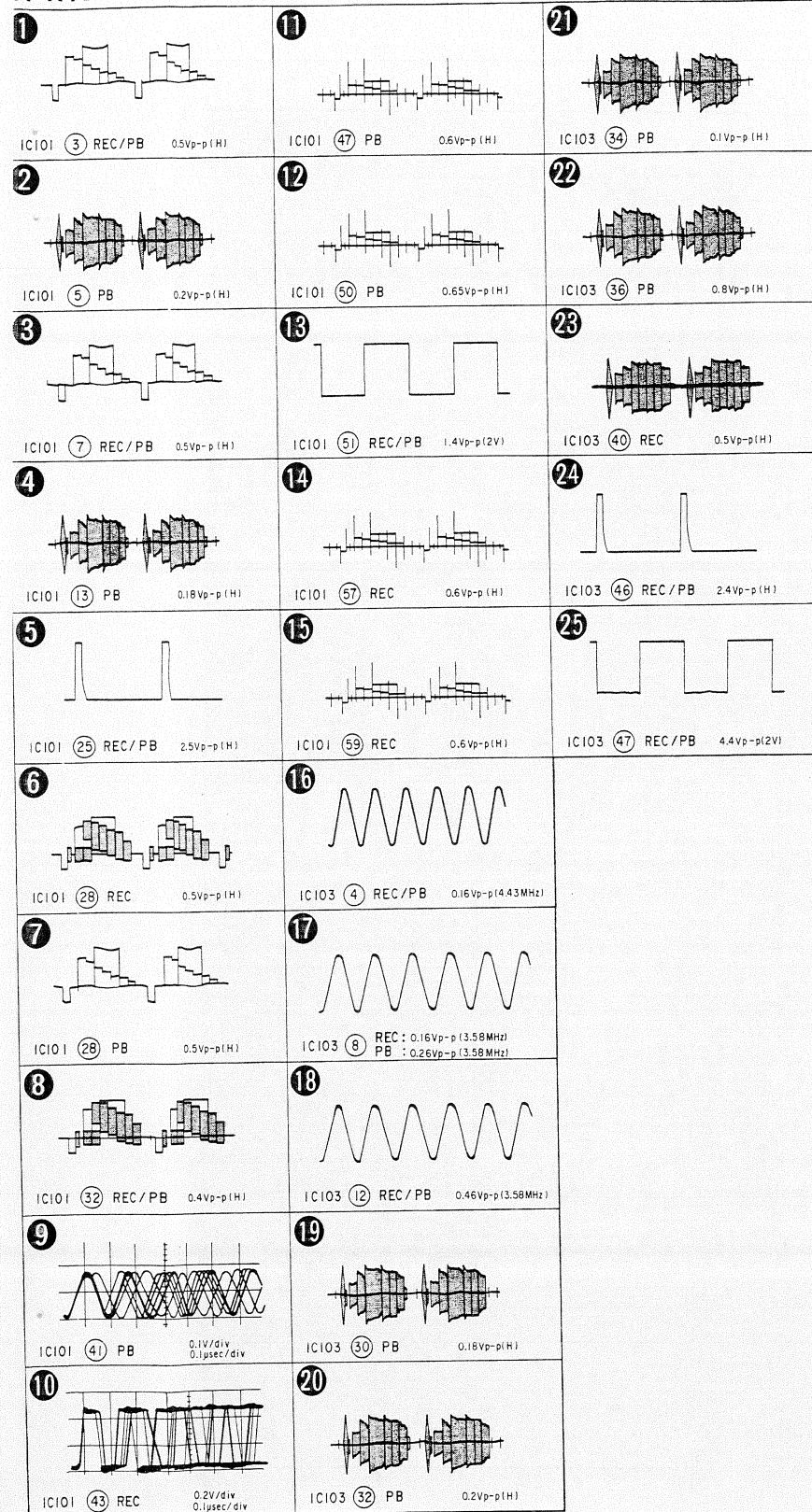


• Signal path

	VIDEO Signal		
	CHROMA	Y	Y/CHROMA
REC	→	⇒	⇒⇒
PB	⇨	⇨	⇨⇒

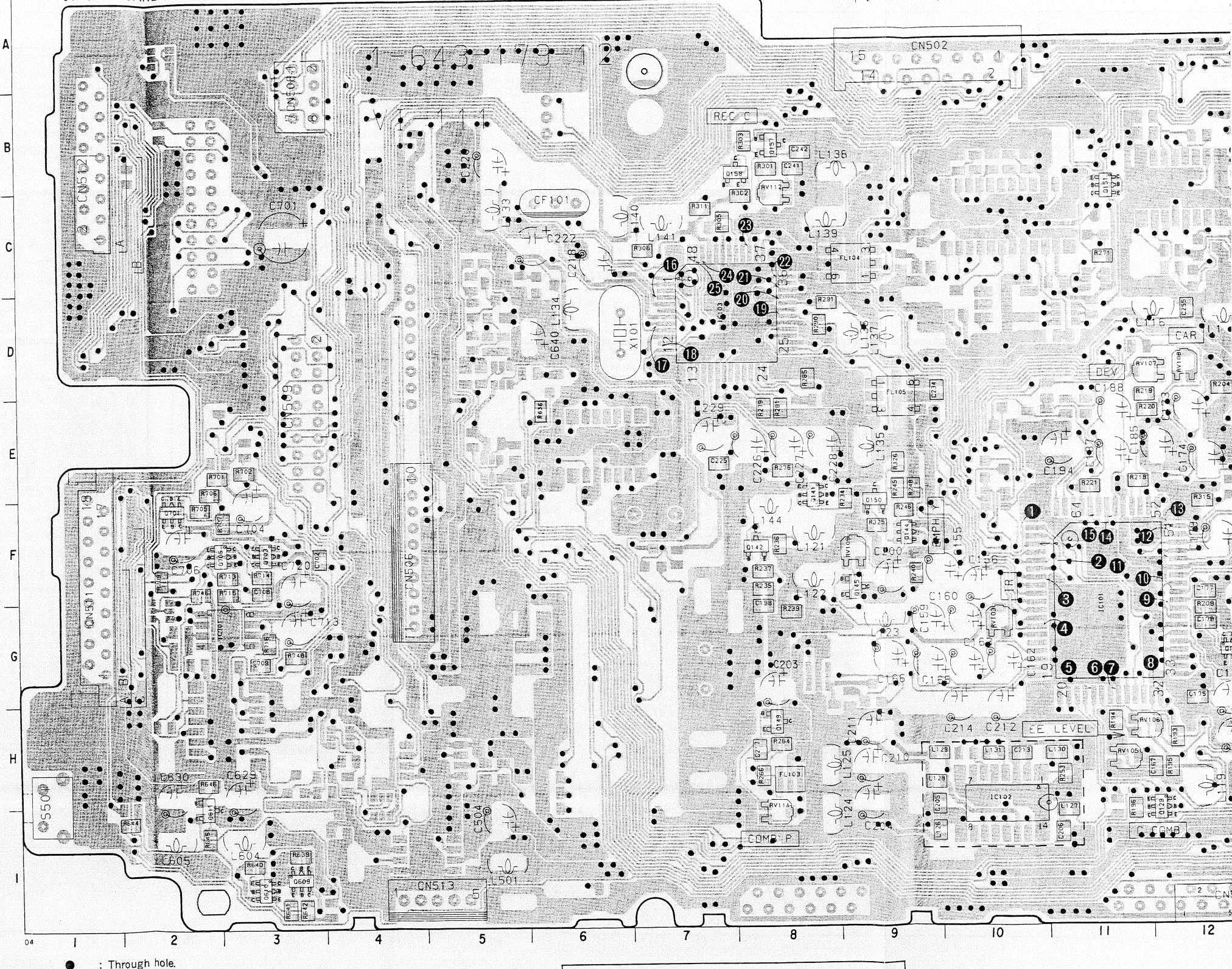


# VI-111 BOARD



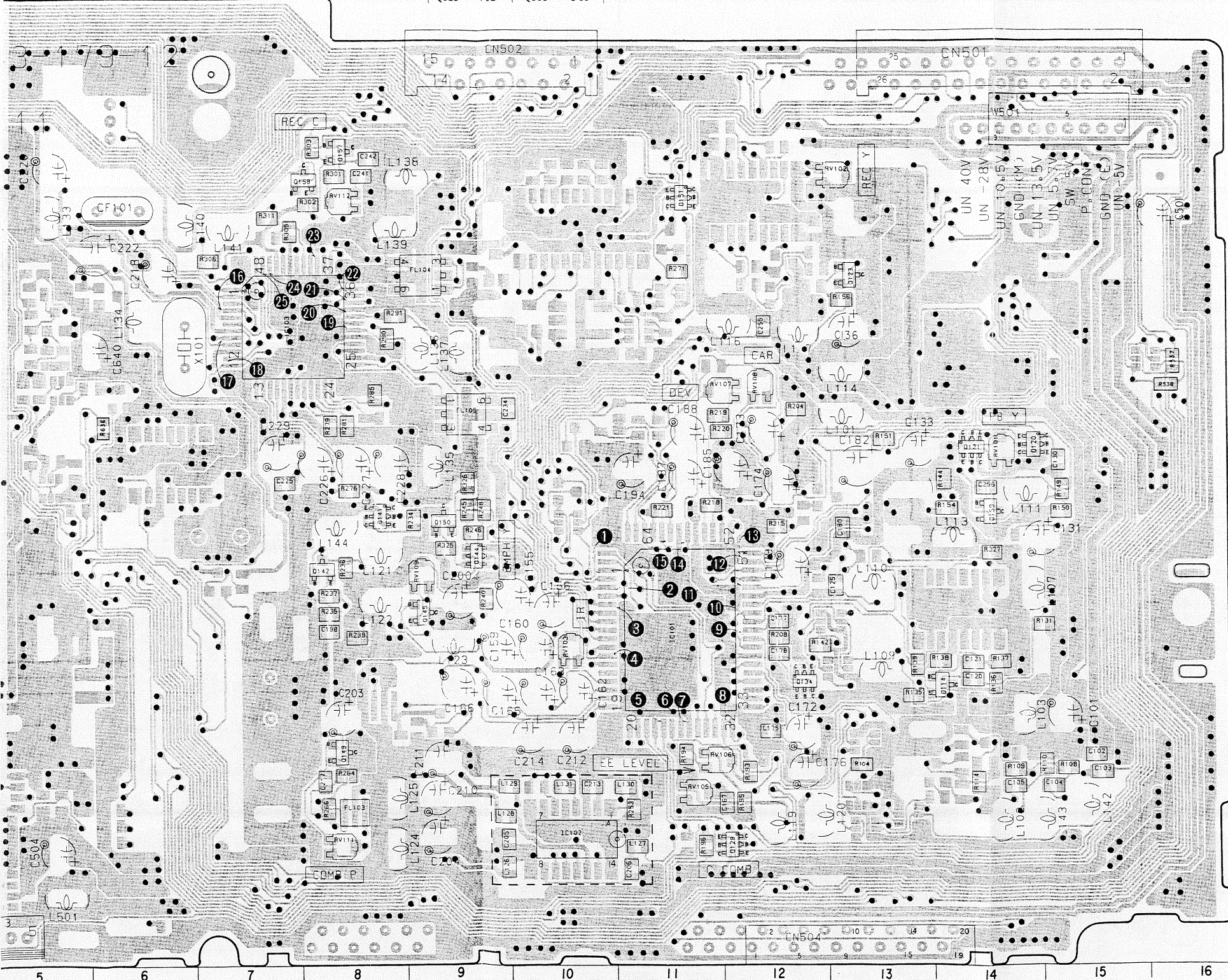
## VI-111 (VIDEO PROCESS) PRINTED WIRING BOARD —Ref.No. VI-111 BOARD : 1000 series—

### VI-111 BOARD (COMPONENT SIDE)

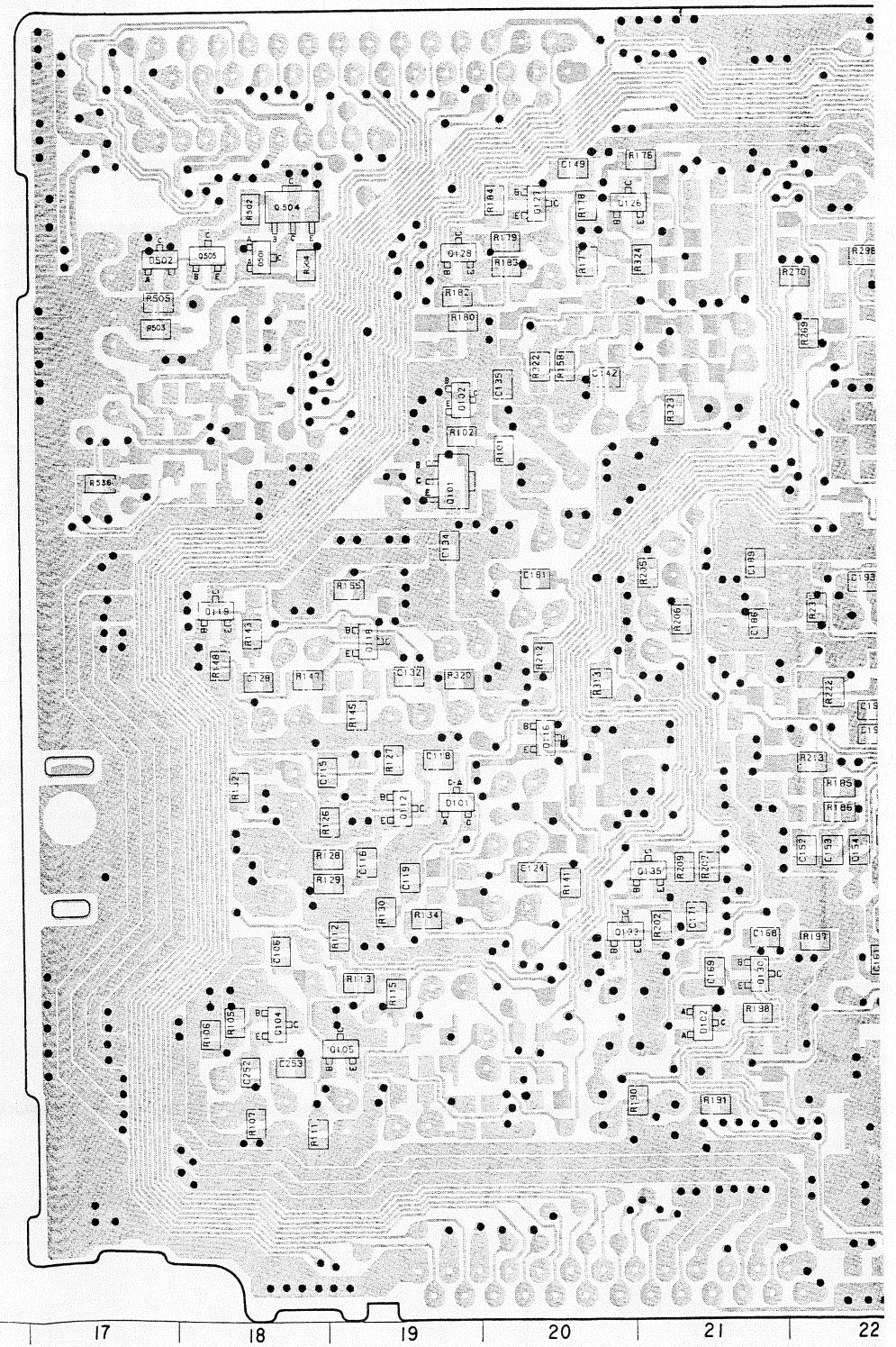




VI-111 BOARD					
D101	F-19	Q101	D-19	Q130	H-21
D102	H-21	Q102	D-19	Q132	G-20
D501	D-18	Q104	H-18	Q133	E-24
D502	D-17	Q105	H-19	Q134	G-12
D505	F-28	Q112	F-19	Q135	G-21
		Q114	G-14	Q140	F-24
IC101	F-11	Q116	F-20	Q141	E-8
IC102	H-10	Q118	E-19	Q142	F-8
IC103	D-7	Q119	E-18	Q143	F-25
IC701	G-3	Q120	E-14	Q144	F-9
		Q121	E-14	Q145	G-9
		Q123	C-13	Q147	H-25
		Q126	B-21	Q148	I-25
		Q127	B-20	Q149	H-8
		Q128	C-19	Q150	F-9
		Q129	I-12	Q151	C-11
				Q152	D-26
				Q156	C-25
				Q157	B-8
				Q158	B-8
				Q159	E-14
				Q504	B-18
				Q505	C-18
				Q609	I-3
				Q610	I-3
				Q611	I-2
				Q701	F-2
				Q703	F-3
				Q704	F-30
				Q705	F-3

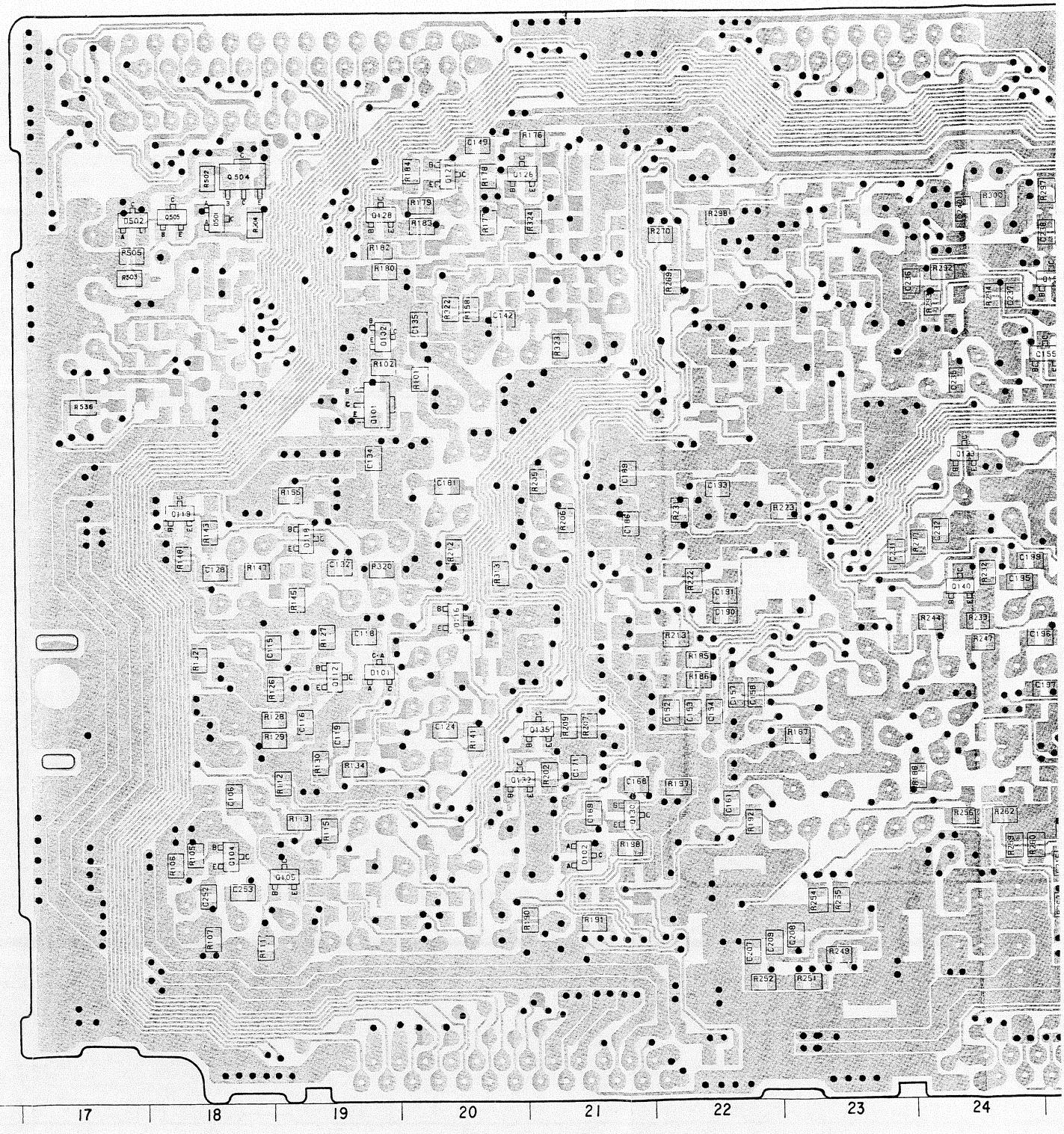
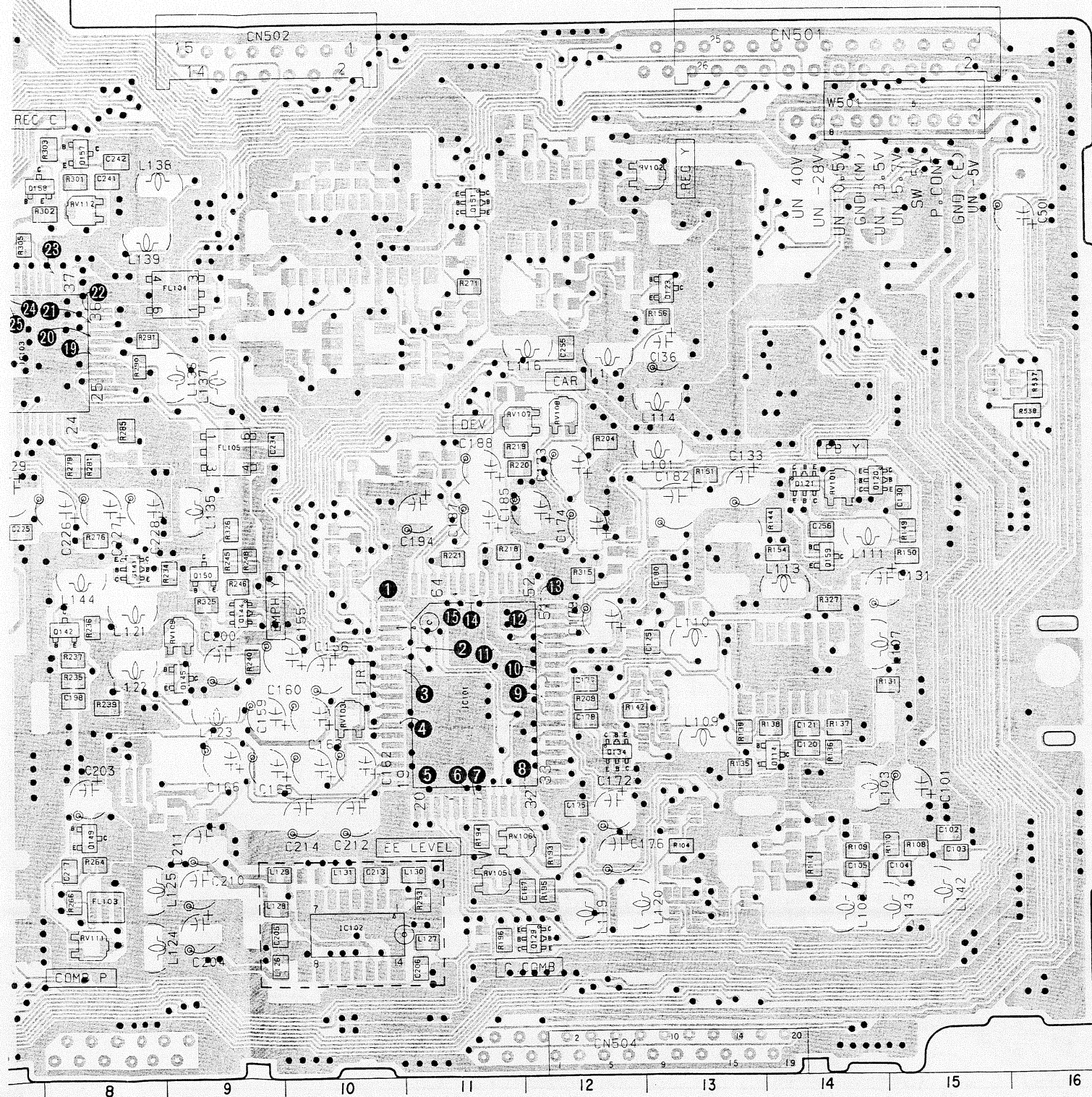


VIDEO (2) VIDEO (2)



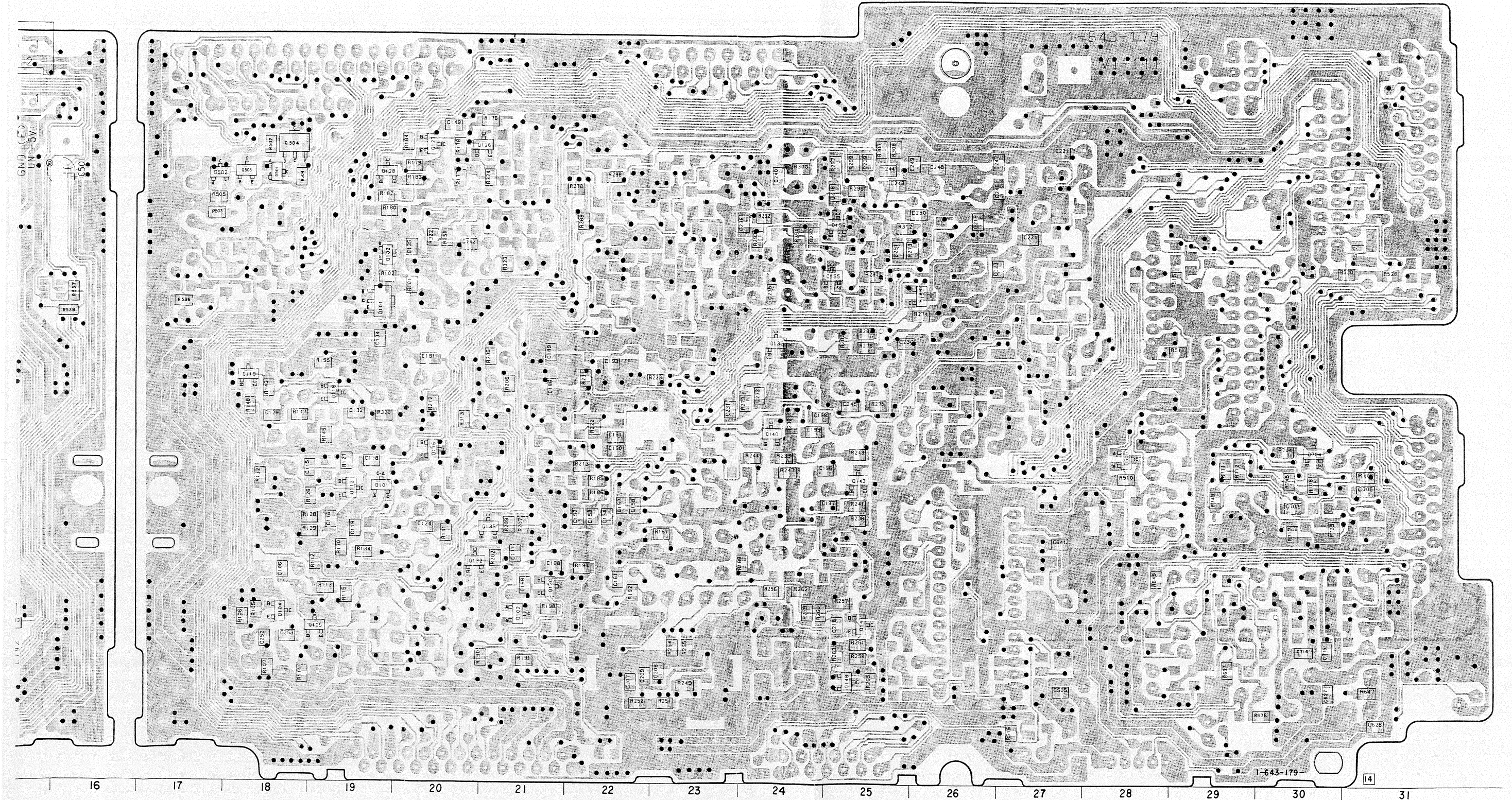


VI-111 BOARD					
D101	F-19	Q101	D-19	Q130	H-21
D102	H-21	Q102	D-19	Q132	G-20
D501	D-18	Q104	H-18	Q133	E-24
D502	D-17	Q105	H-19	Q134	G-12
D505	F-28	Q112	F-19	Q135	G-21
		Q114	G-14	Q140	F-24
		Q116	F-20	Q141	E-8
IC101	F-11	Q118	E-19	Q142	F-8
IC102	H-10	Q119	E-18	Q143	F-25
IC103	D-7	Q120	E-14	Q144	F-9
IC701	G-3	Q121	E-14	Q145	G-9
		Q123	C-13	Q147	H-25
		Q126	B-21	Q148	I-25
		Q127	B-20	Q149	H-8
		Q128	C-19	Q150	F-9
		Q129	I-12	Q151	C-11
				Q152	D-26
				Q156	C-25
				Q157	B-8
				Q158	B-8
				Q159	E-14
				Q504	B-18
				Q505	C-18
				Q609	I-3
				Q610	I-3
				Q611	I-2
				Q701	F-2
				Q703	F-3
				Q704	F-30
				Q705	F-3





VI-111 BOARD (CONDUCTOR SIDE)





< DIODE >  
 D101 8-719-800-76 1SS226  
 D102 8-719-400-18 MA152WK  
 D501 8-719-975-41 RB411D  
 D502 8-719-105-91 RD5.6M-B2  
 D505 8-719-104-34 1S2836

< IC >  
 IC101 8-752-054-87 CXA1207AQ  
 IC102 8-752-332-68 CXL5502M  
 IC103 8-752-039-34 CXA1208Q  
 IC701 8-759-100-96 uPC4558G2

< TRANSISTOR >  
 Q101 8-729-101-07 2SB798-DL  
 Q102 8-729-421-19 UN2213  
 Q104 8-729-422-27 2SD601A-Q  
 Q105 8-729-422-27 2SD601A-Q  
 Q112 8-729-102-07 2SC2223-F13

Q114 8-729-422-27 2SD601A-Q  
 Q116 8-729-424-18 UN2113  
 Q118 8-729-422-27 2SD601A-Q  
 Q119 8-729-422-27 2SD601A-Q  
 Q120 8-729-403-02 XN4212

Q121 8-729-402-84 XN4601  
 Q123 8-729-422-27 2SD601A-Q  
 Q126 8-729-422-27 2SD601A-Q  
 Q127 8-729-422-27 2SD601A-Q  
 Q128 8-729-422-27 2SD601A-Q

Q129 8-729-403-24 XN4210  
 Q130 8-729-422-36 2SB709A-Q  
 Q132 8-729-421-19 UN2213  
 Q133 8-729-424-08 UN2111  
 Q134 8-729-420-20 XN4312

Q135 8-729-421-19 UN2213  
 Q140 8-729-422-27 2SD601A-Q  
 Q141 8-729-403-02 XN4212  
 Q142 8-729-422-27 2SD601A-Q  
 Q143 8-729-422-27 2SD601A-Q

Q144 8-729-402-81 XN4501  
 Q145 8-729-422-36 2SB709A-Q  
 Q147 8-729-422-36 2SB709A-Q  
 Q148 8-729-422-27 2SD601A-Q  
 Q149 8-729-422-27 2SD601A-Q

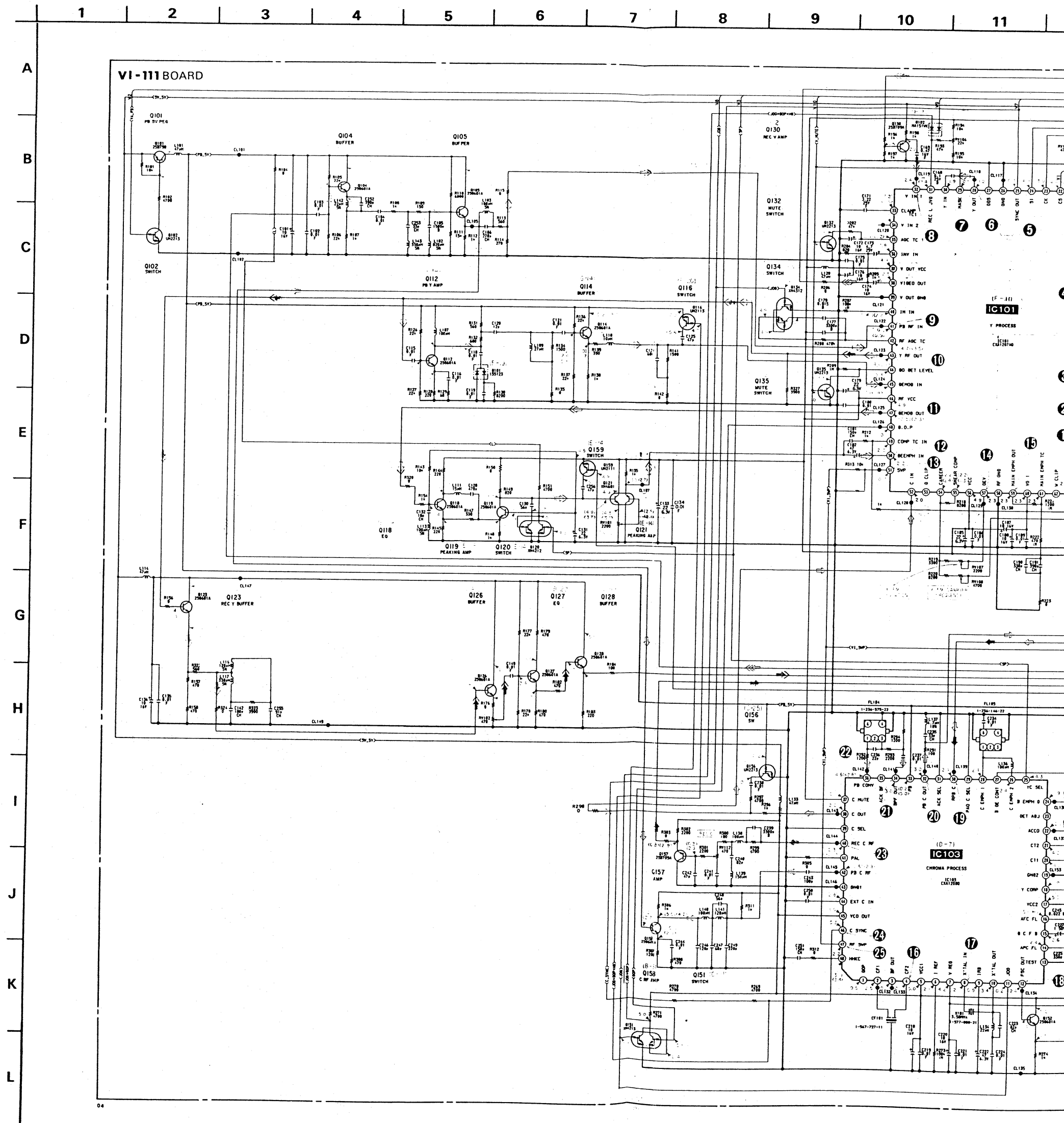
Q150 8-729-422-27 2SD601A-Q  
 Q151 8-729-420-12 XN4213  
 Q152 8-729-422-27 2SD601A-Q  
 Q156 8-729-421-19 UN2213  
 Q157 8-729-422-36 2SB709A-Q

Q158 8-729-422-27 2SD601A-Q  
 Q159 8-729-424-08 UN2111  
 Q504 8-729-101-07 2SB798-DL  
 Q505 8-729-422-27 2SD601A-Q  
 Q609 8-729-402-84 XN4601

Q610 8-729-402-84 XN4601  
 Q611 8-729-422-27 2SD601A-Q  
 Q701 8-729-102-81 XN4501

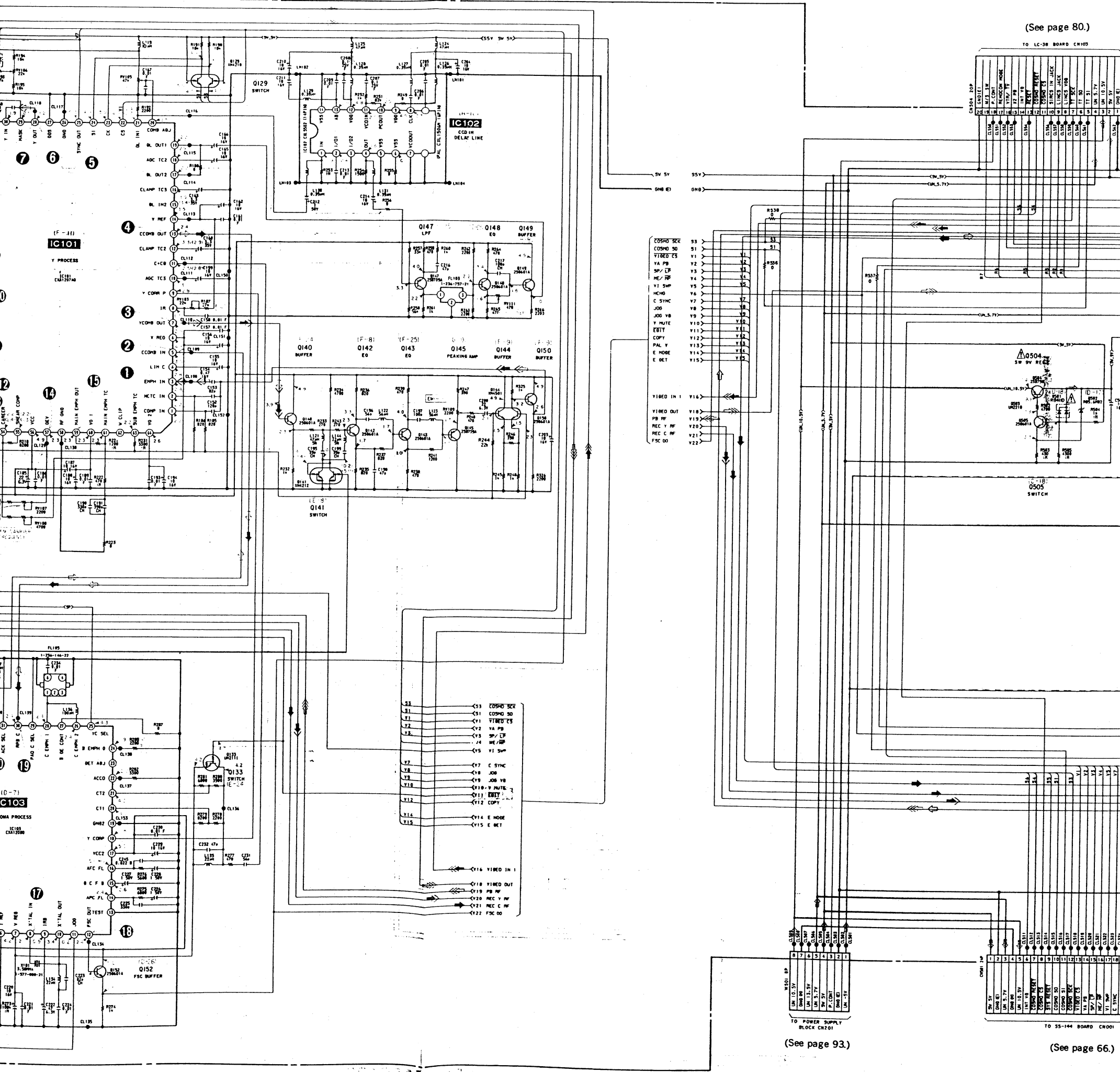
Q703 8-729-421-90 XN4113  
 Q704 8-729-902-XX UN2215  
 Q705 8-729-422-54 XN4215

VI-111 (VIDEO PROCESS) SCHEMATIC DIAGRAM  
 —Ref.No. VI-111 BOARD : 1000 series—






- 8-729-422-27 2SD601A-Q
- 8-729-420-12 XN4213
- 8-729-422-27 2SD601A-Q
- 8-729-421-19 UN2213
- 8-729-422-36 2SB709A-Q
- 8-729-422-27 2SD601A-Q
- 8-729-424-08 UN2111
- 8-729-101-07 2SB798-DL
- 8-729-422-27 2SD601A-Q
- 8-729-402-84 XN4601
- 8-729-402-84 XN4601
- 8-729-422-27 2SD601A-Q
- 8-729-102-81 XN4501
- 8-729-421-90 XN4113
- 8-729-902-XX UN2215
- 8-729-422-54 XN4215

11	12	13	14	15	16	17	18	19	20	21	22
----	----	----	----	----	----	----	----	----	----	----	----
















**Note:**  
The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

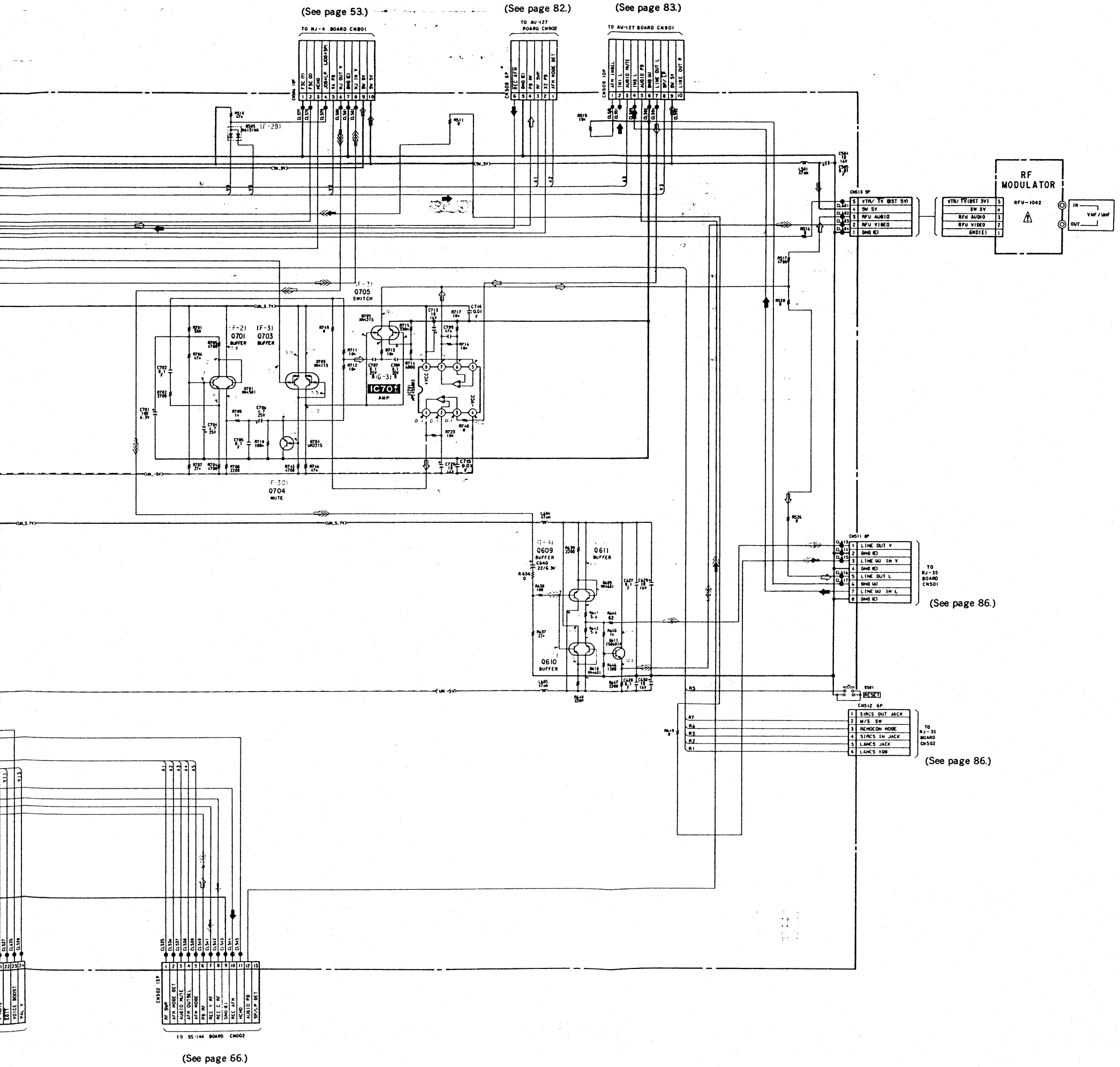
**Note:**  
Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

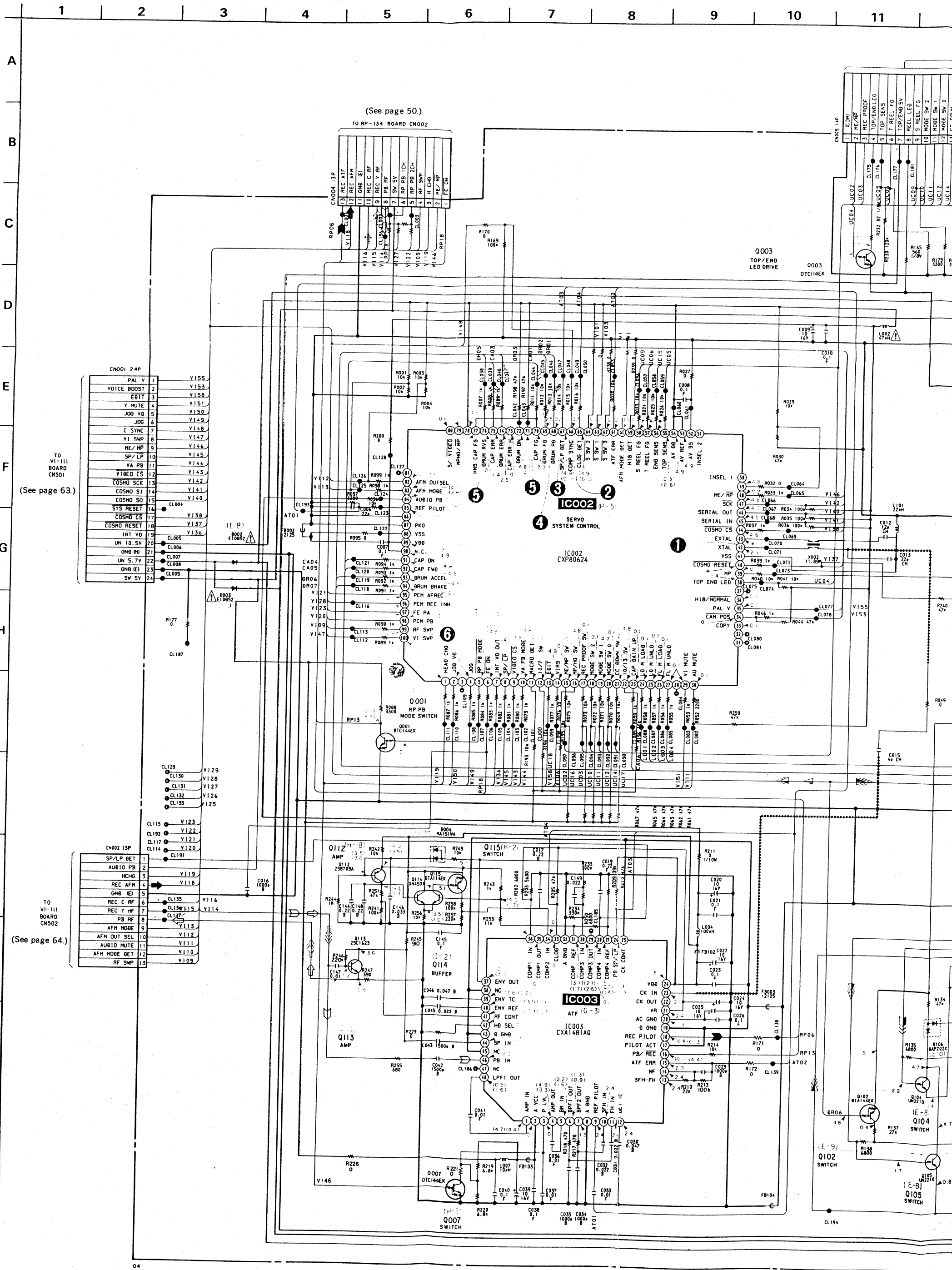
• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	CHROMA	
REC				
PB				

• Signal path

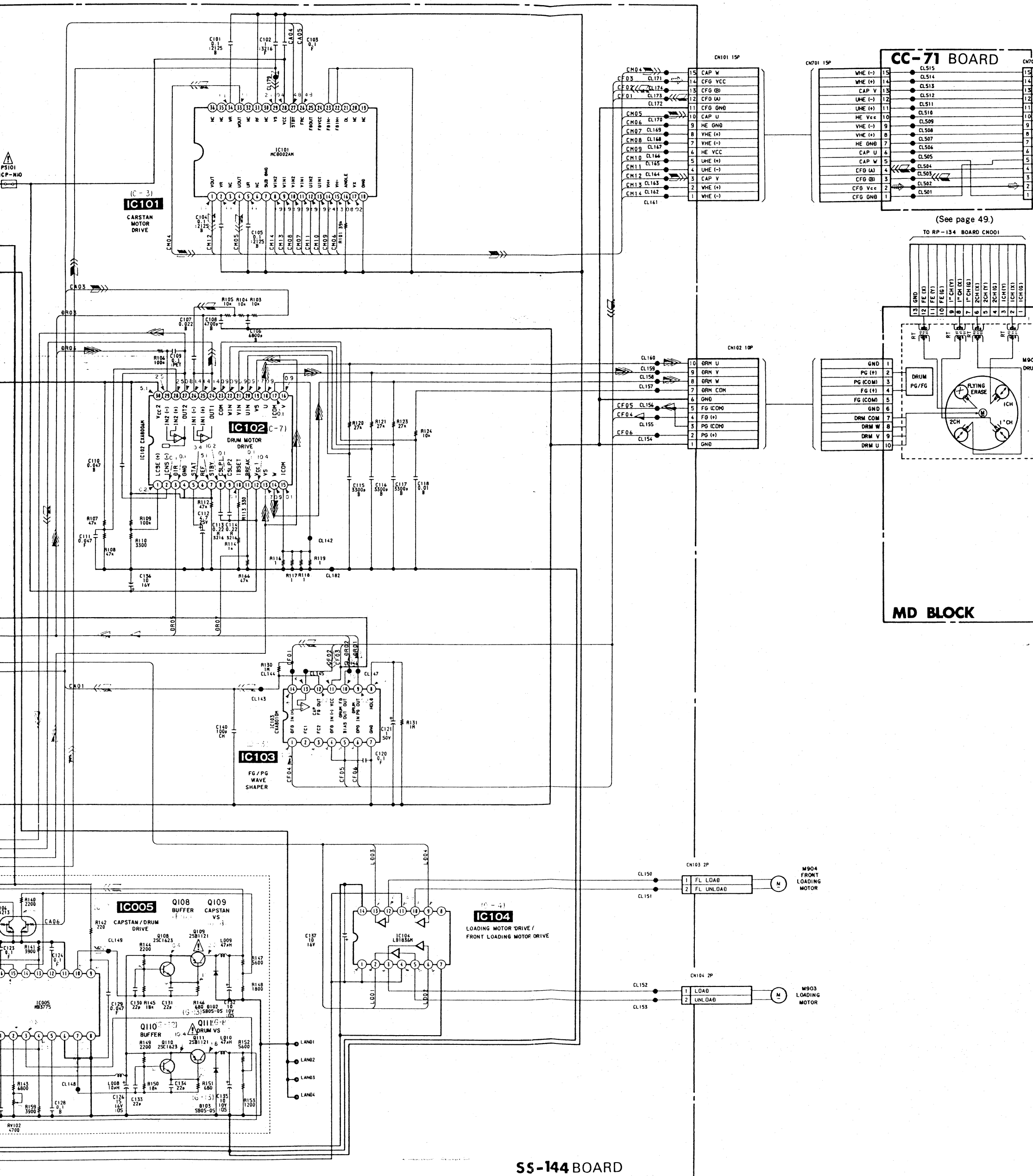
	REC	REC/PB	PB
Ref. signal			

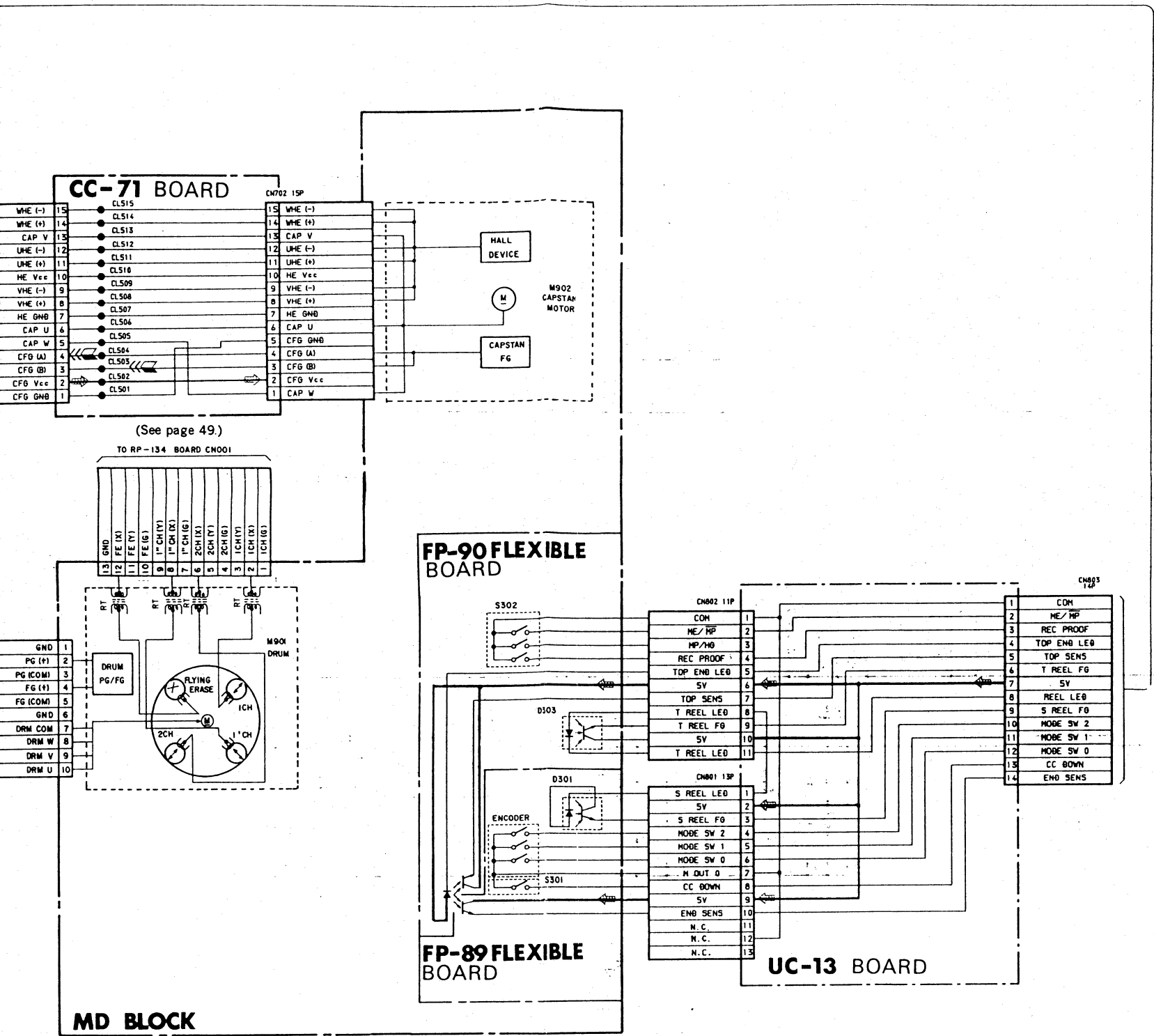




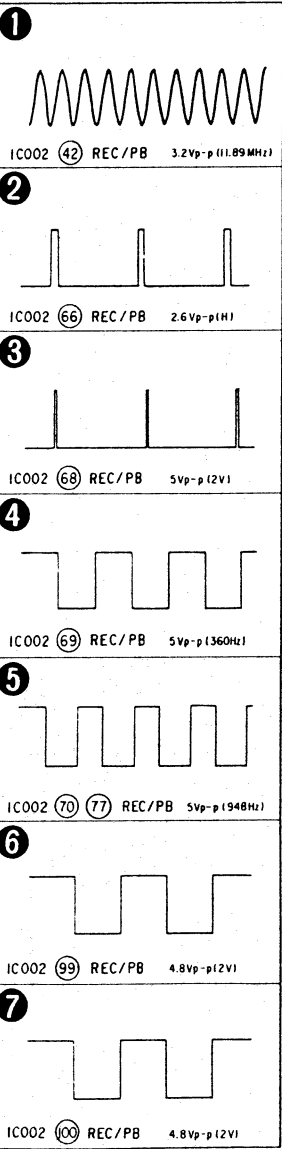








SS-144 BOARD



• Signal path

				AUDIO Signal
REC	➡	➡	➡	➡
PB	➡	➡	➡	➡

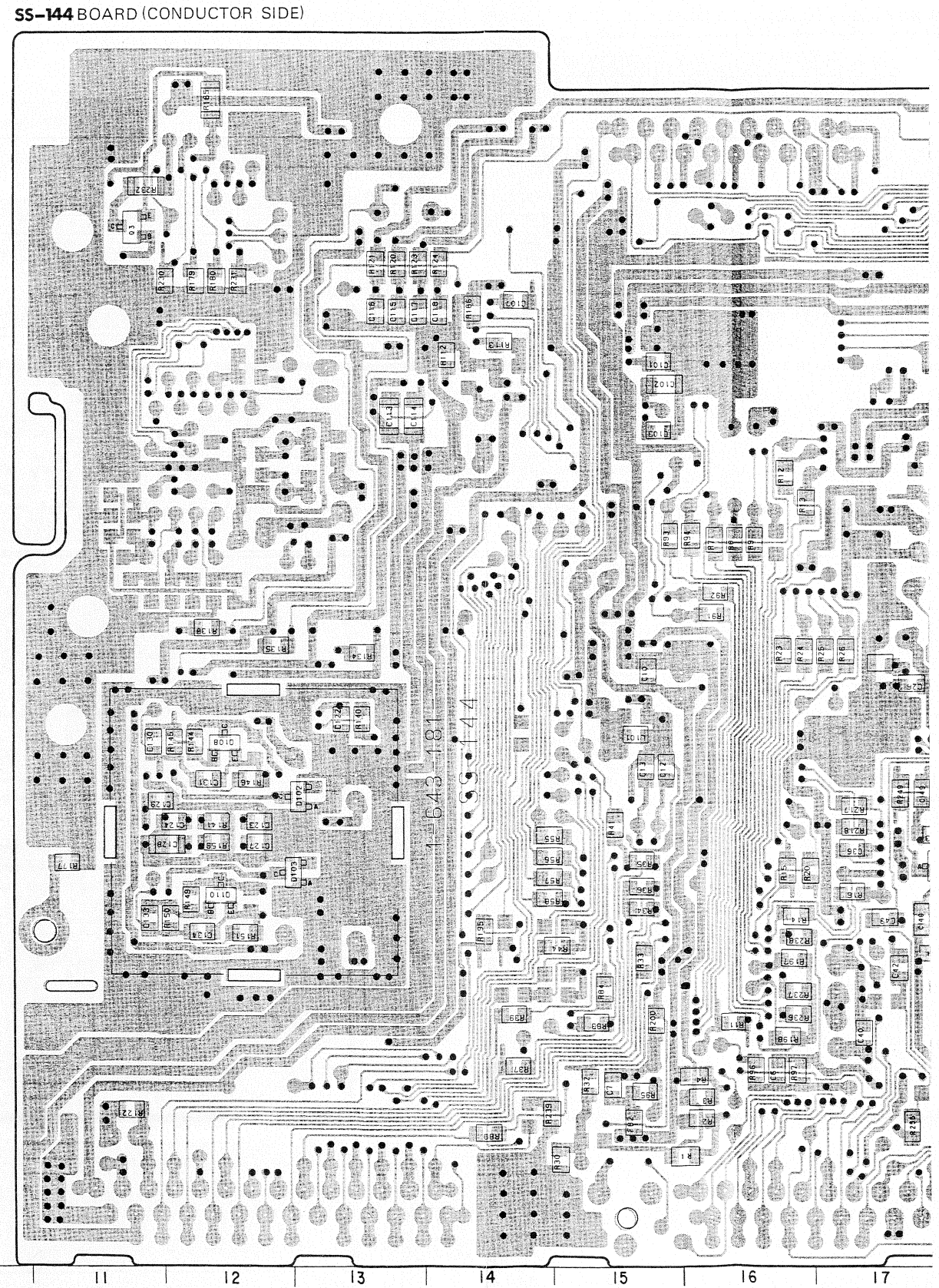
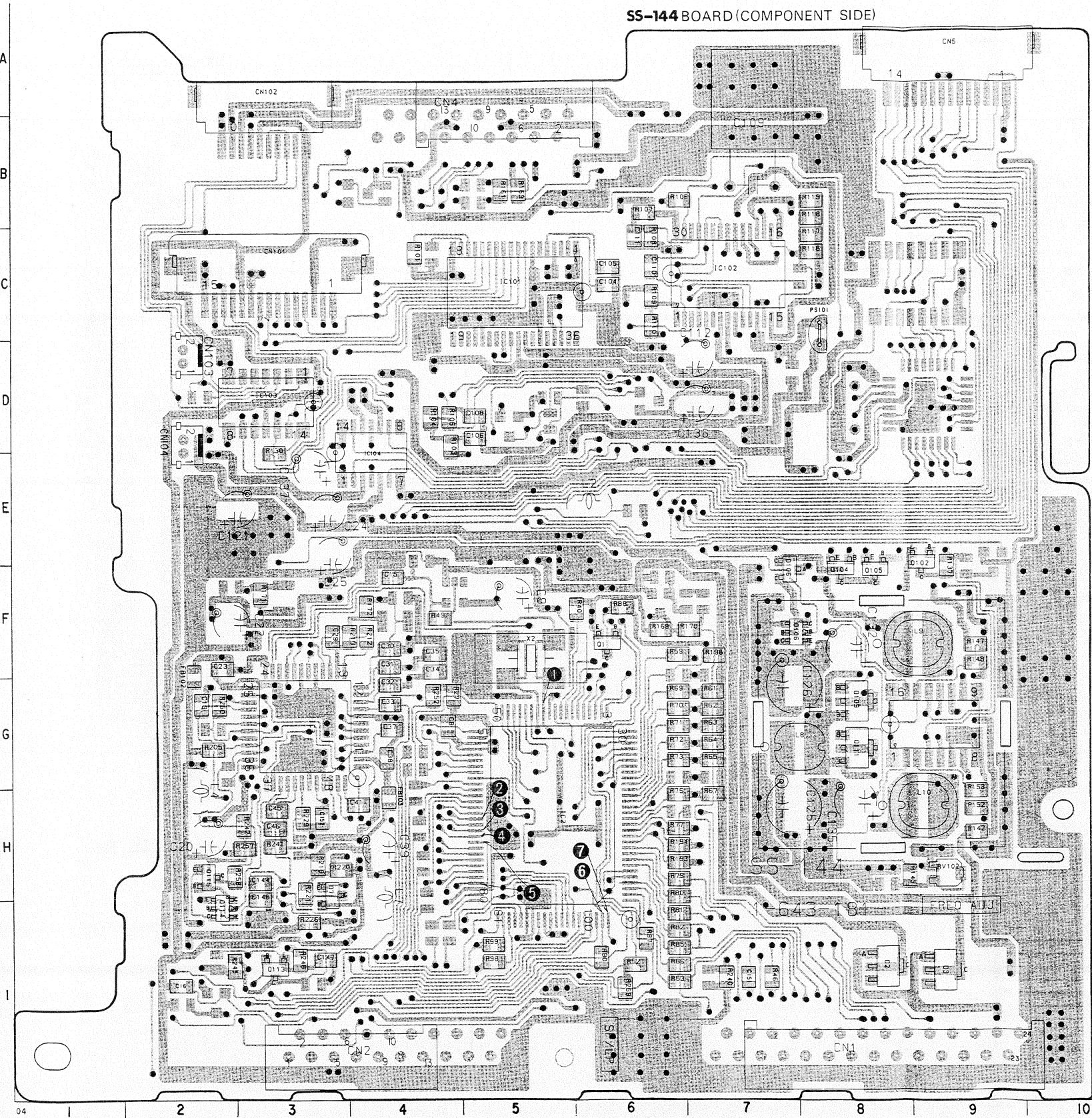
• Signal path

	REC	REC/PB	PB
Drum motor		➡	
Drum motor		➡	
Drum motor		➡	
Drum motor		➡	
Drum motor		➡	
Ref.signal	➡	➡	➡

**Note:**  
The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

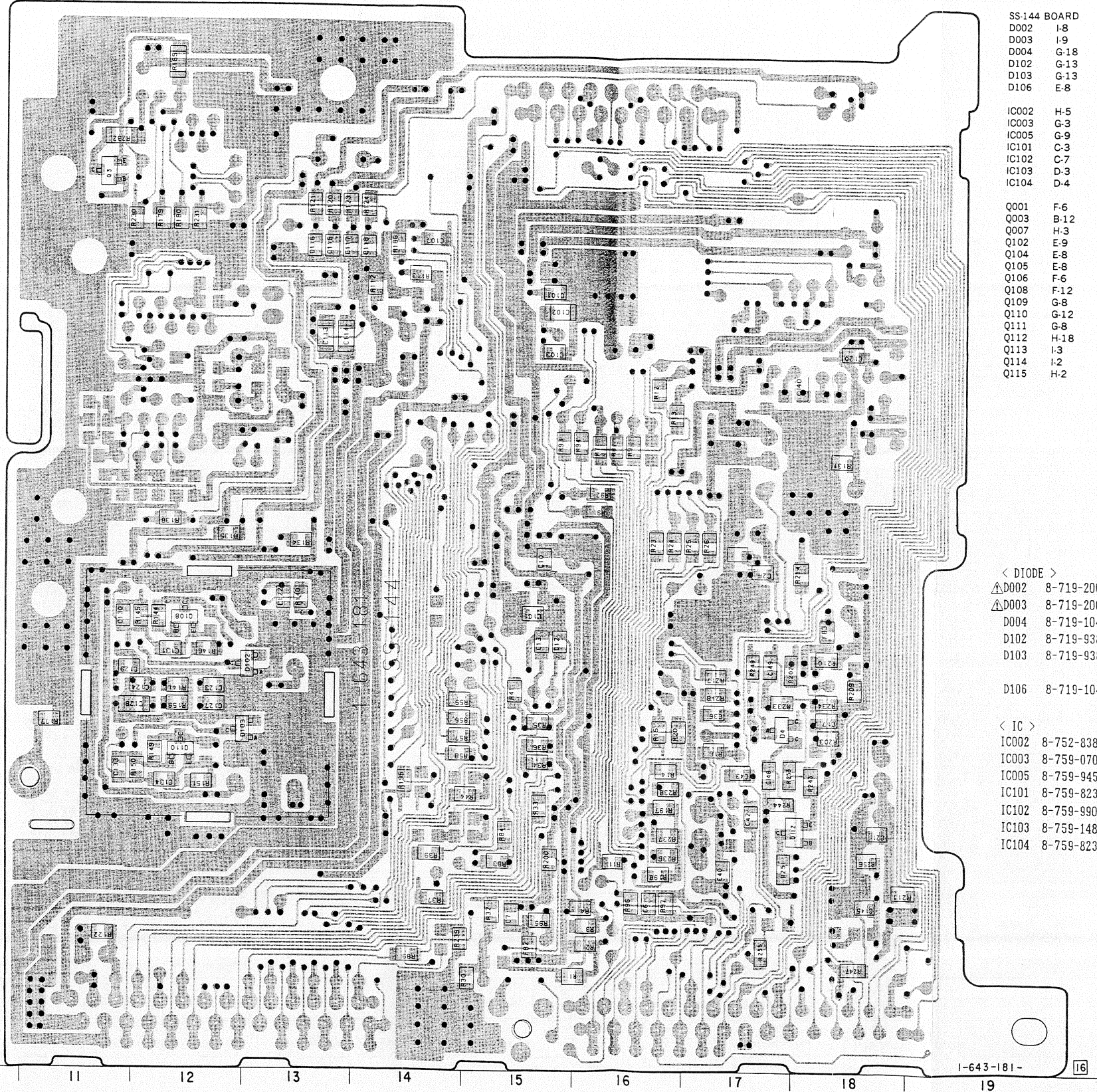
**Note:**  
Les composants identifiés par une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.







## SS-144 BOARD (CONDUCTOR SIDE)



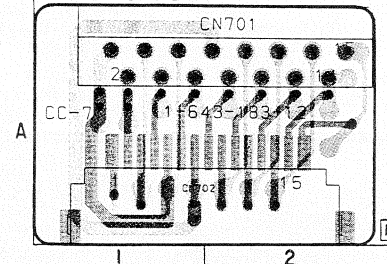
## SS-144 BOARD

D002 I-8  
D003 I-9  
D004 G-18  
D102 G-13  
D103 G-13  
D106 E-8

IC002 H-5  
IC003 G-3  
IC005 G-9  
IC101 C-3  
IC102 C-7  
IC103 D-3  
IC104 D-4

Q001 F-6  
Q003 B-12  
Q007 H-3  
Q102 E-9  
Q104 E-8  
Q105 E-8  
Q106 F-6  
Q108 F-12  
Q109 G-8  
Q110 G-12  
Q111 G-8  
Q112 H-18  
Q113 I-3  
Q114 I-2  
Q115 H-2

## CC-71 BOARD



## &lt; DIODE &gt;

△D002 8-719-200-27 E10DS2  
△D003 8-719-200-27 E10DS2  
D004 8-719-104-34 1S2836  
D102 8-719-938-75 SB05-05CP  
D103 8-719-938-75 SB05-05CP

D106 8-719-104-34 1S2836

## &lt; IC &gt;

IC002 8-752-838-03 CXP80624-412Q  
IC003 8-759-070-96 CXA1481AQ  
IC005 8-759-945-17 MB3775PF  
IC101 8-759-823-65 MCD002AM  
IC102 8-759-990-55 CXA8006M  
IC103 8-759-148-05 CXA8010M  
IC104 8-759-823-94 LB1836M

## &lt; TRANSISTOR &gt;

Q001 8-729-901-01 DTC144EK  
Q003 8-729-100-66 2SC1623-L6  
Q007 8-729-901-01 DTC144EK  
Q102 8-729-901-06 DTA144EK  
Q104 8-729-424-77 UN2210

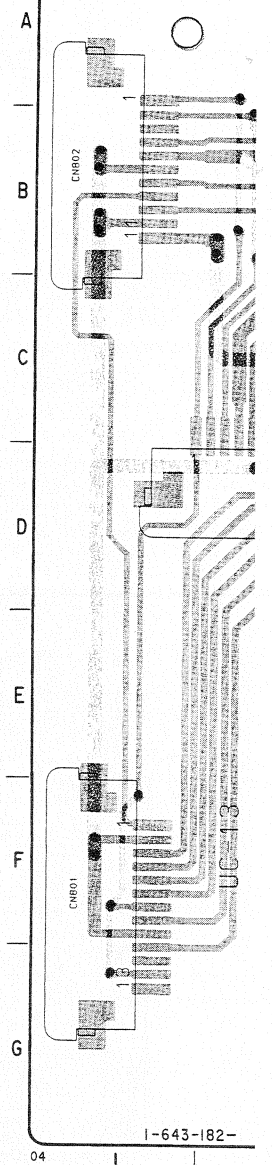
Q105 8-729-424-77 UN2210  
Q106 8-729-420-12 XN4213  
Q108 8-729-100-66 2SC1623-L6  
△Q109 8-729-805-25 2SB1121  
Q110 8-729-100-66 2SC1623-L6

△Q111 8-729-805-25 2SB1121  
Q112 8-729-422-36 2SB709A-Q  
Q113 8-729-100-66 2SC1623-L6  
Q114 8-729-402-81 XN4501  
Q115 8-729-901-04 DTA114EK

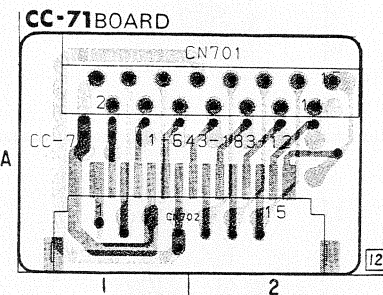
● : Through hole.

■ : Pattern of the rear side.

## UC-13 BOARD



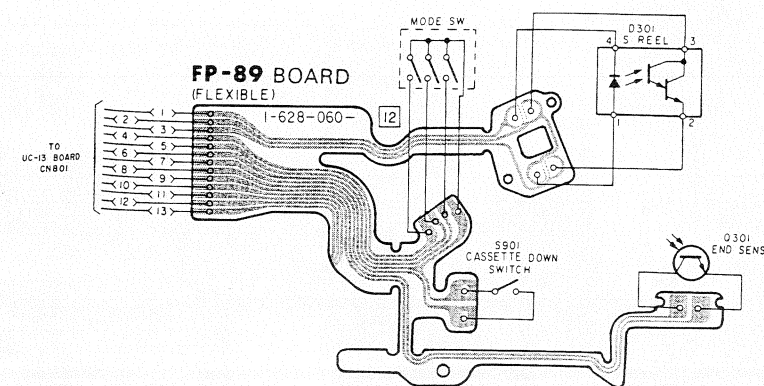
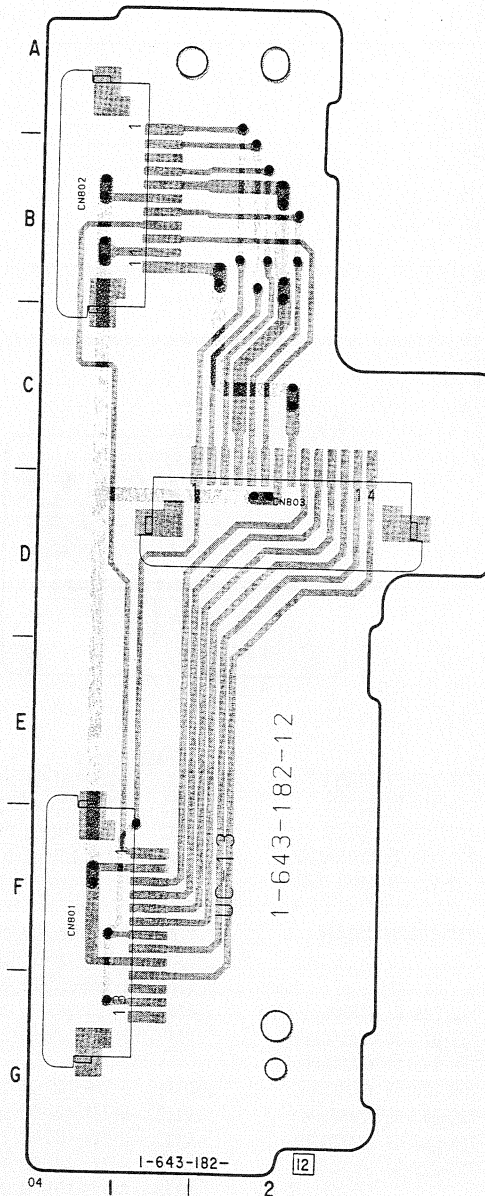




0-27 E10DS2	< TRANSISTOR >
0-27 E10DS2	Q001 8-729-901-01 DTC144EK
4-34 1S2836	Q003 8-729-100-66 2SC1623-L6
8-75 SB05-05CP	Q007 8-729-901-01 DTC144EK
8-75 SB05-05CP	Q102 8-729-901-06 DTA144EK
	Q104 8-729-424-77 UN2210
4-34 1S2836	Q105 8-729-424-77 UN2210
	Q106 8-729-420-12 XN4213
	Q108 8-729-100-66 2SC1623-L6
3-03 CXP80624-412Q	Q109 8-729-805-25 2SB1121
J-96 CXA1481AQ	Q110 8-729-100-66 2SC1623-L6
3-17 MB3775PF	
3-65 MCD002AM	Q111 8-729-805-25 2SB1121
J-55 CXA8006M	Q112 8-729-422-36 2SB709A-Q
3-05 CXA8010M	Q113 8-729-100-66 2SC1623-L6
J-94 LB1836M	Q114 8-729-402-81 XN4501
	Q115 8-729-901-04 DTA114EK

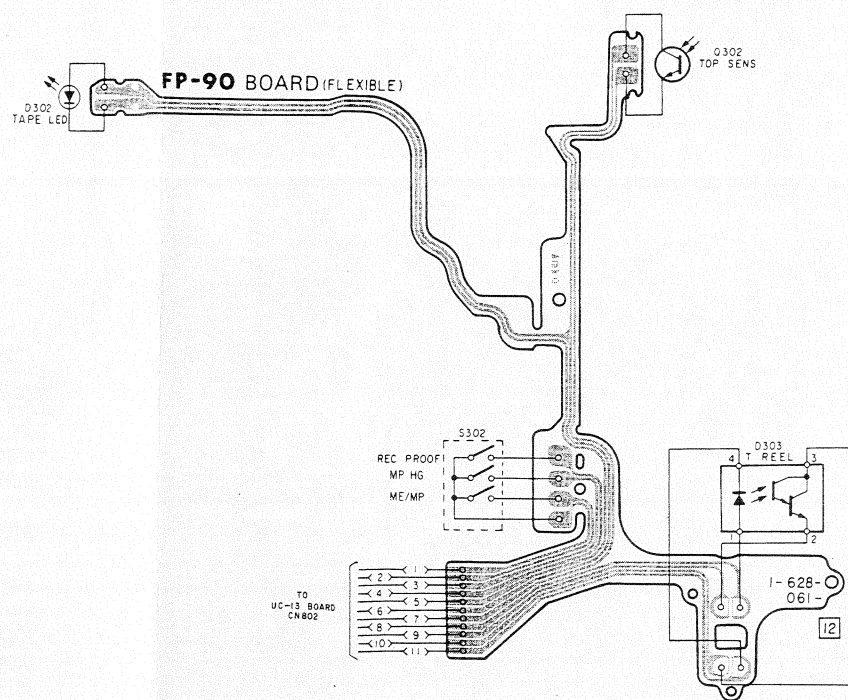
● : Through hole.  
 ■ : Pattern of the rear side.

UC-13 BOARD



< DIODE >  
 D301 8-719-820-44 TLP907-0 (SONY2)

< TRANSISTOR >  
 Q301 8-729-906-48 EE-TP109



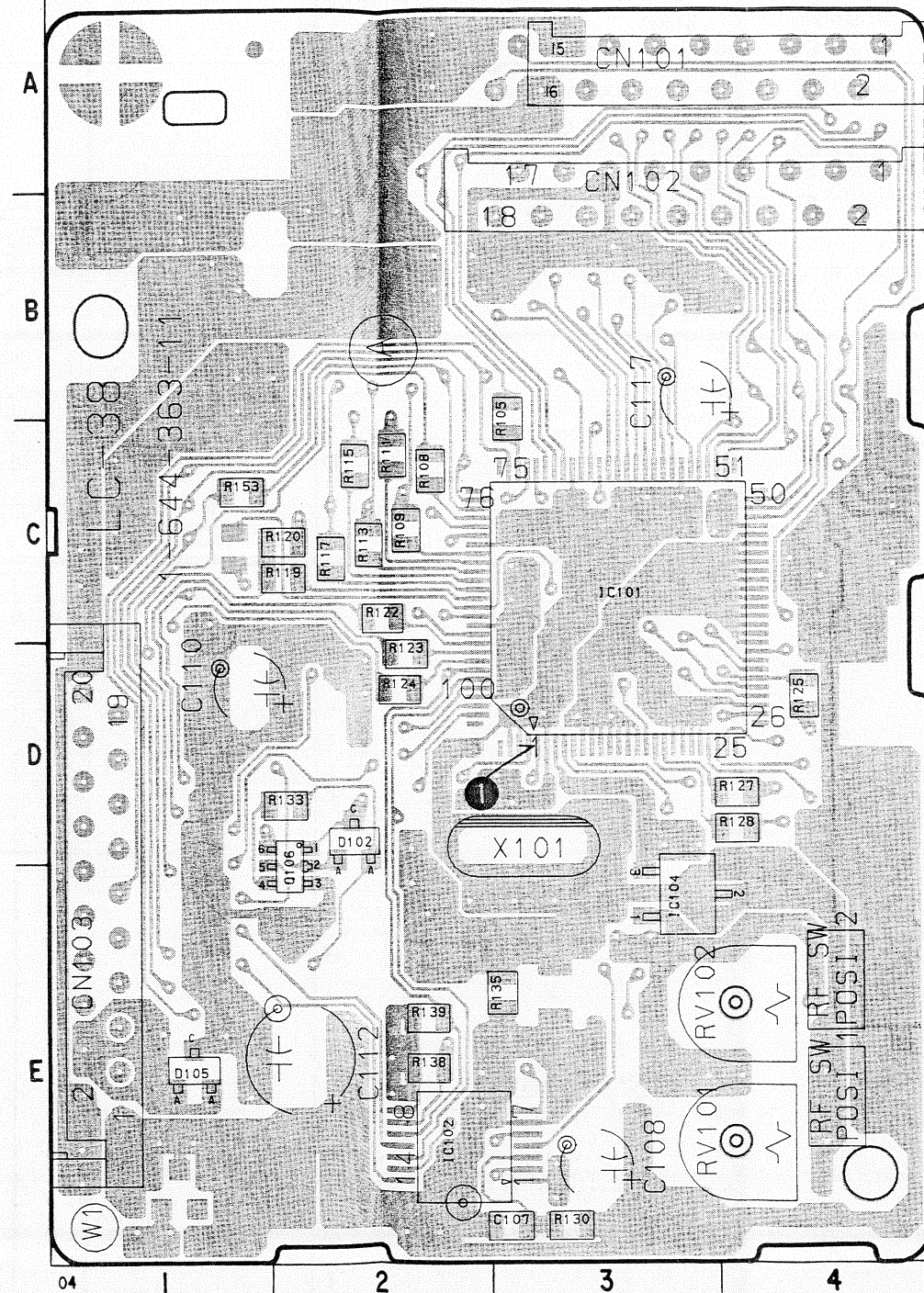
< DIODE >  
 D302 8-719-026-04 GL-453JS  
 D303 8-719-820-41 TLP907-0 (SONY2)

< TRANSISTOR >  
 Q302 8-729-906-48 EE-TP109

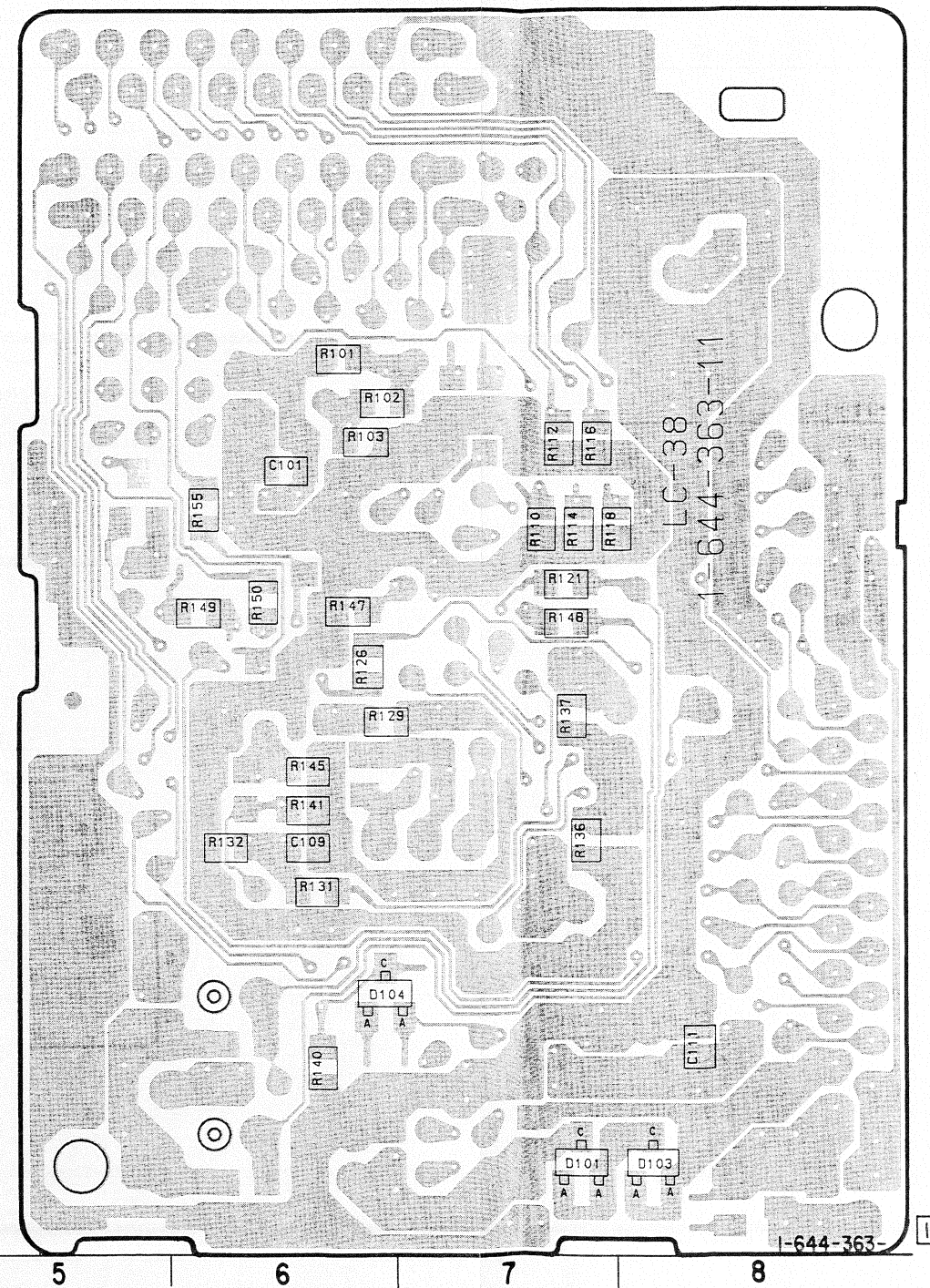


LC-38 (MODE CONTROL) PRINTED WIRING BOARD  
—Ref.No.LC-38 BOARD : 3000 series—

LC-38BOARD (COMPONENT SIDE)



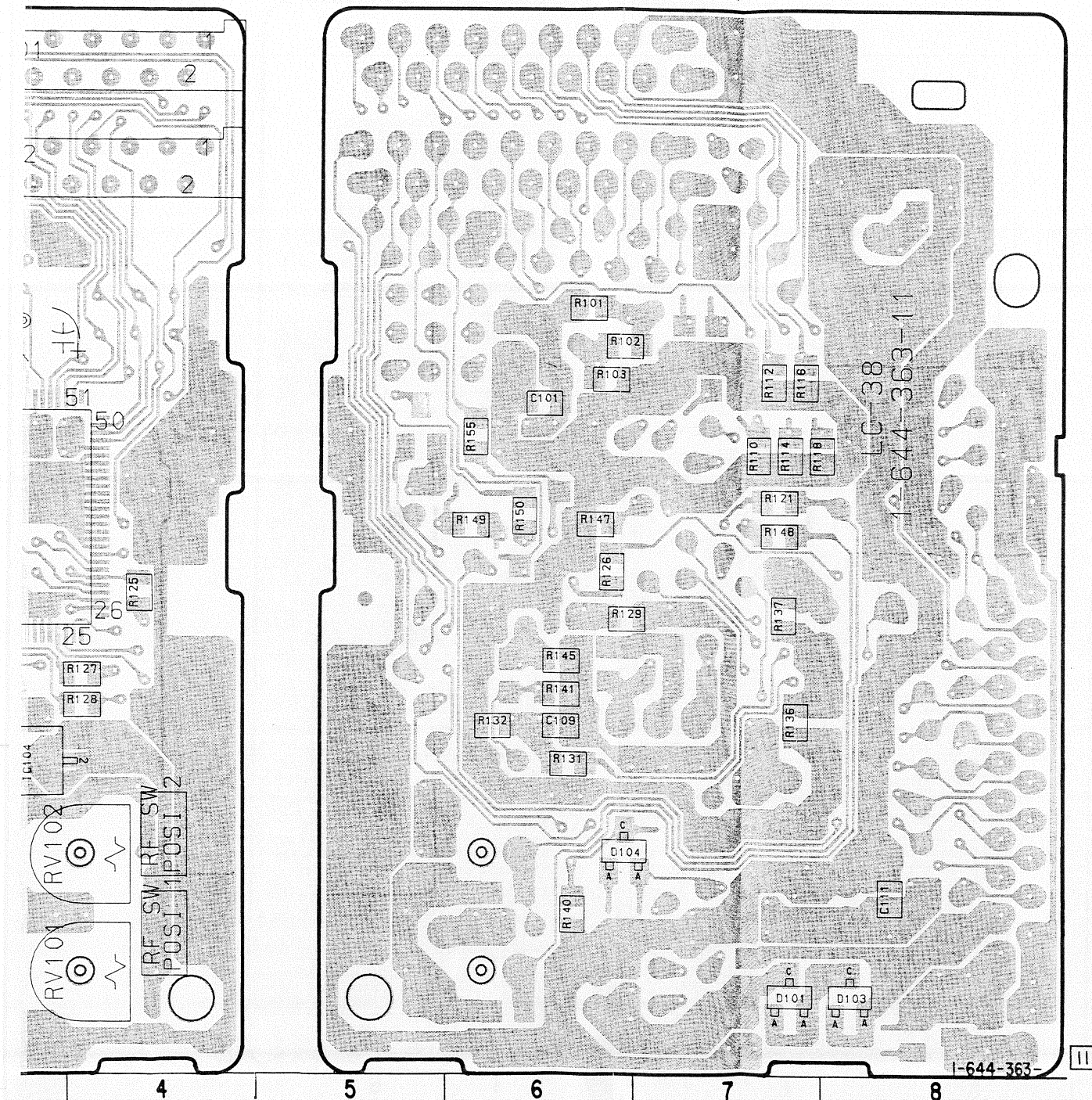
LC-38BOARD (CONDUCTOR SIDE)



LC  
D1  
D1  
D1  
D1  
D1  
IC:  
IC:  
IC:  
Q1



# LC-38 BOARD (CONDUCTOR SIDE)



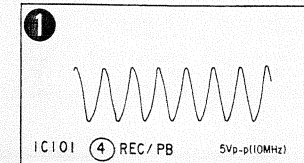
LC-38 BOARD  
D101 E-7  
D102 D-2  
D103 E-8  
D104 E-6  
D105 E-1  
IC101 C-3  
IC102 E-2  
IC104 E-3  
Q106 D-2



< DIODE >  
△D101 8-719-400-18 MA152WK  
D102 8-719-400-18 MA152WK  
△D103 8-719-400-18 MA152WK  
D104 8-719-400-18 MA152WK  
△D105 8-719-400-18 MA152WK


< IC >  
IC101 8-759-067-95 MB89093  
IC102 8-759-999-02 TL1596CDB  
IC104 8-759-067-98 PST600CMT

< TRANSISTOR >  
Q106 8-729-420-20 XN4312

## LC-38 BOARD

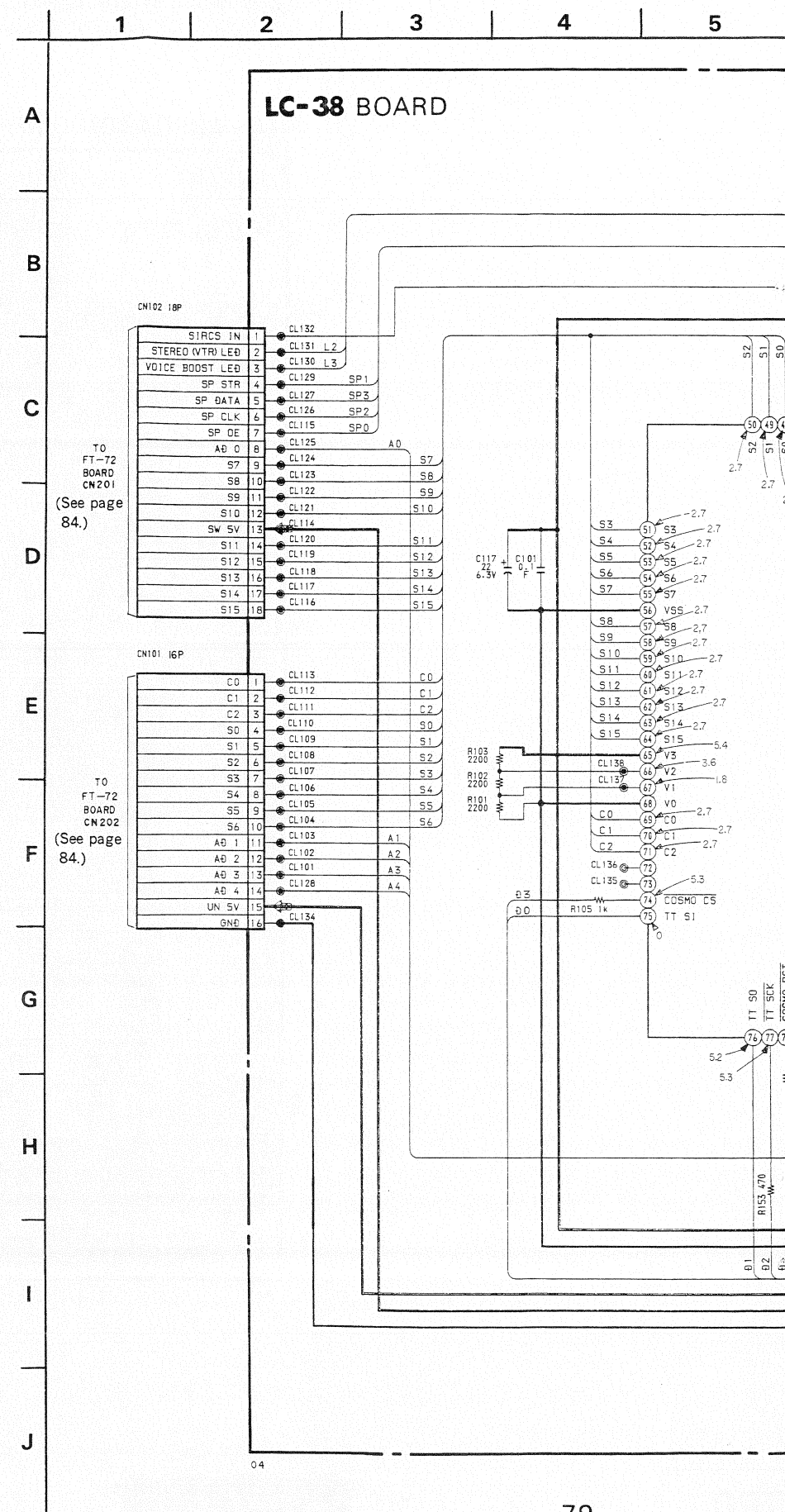


Note:  
The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

Note:  
Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

## LC-38 (MODE CONTROL) SCHEMATIC DIAGRAM

—Ref.No.LC-38 BOARD : 3000 series—



MODE CONTROL MODE CONTROL



LC-38 (MODE CONTROL) SCHEMATIC DIAGRAM  
—Ref.No.LC-38 BOARD : 3000 series—

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A

B

C

D

E

F

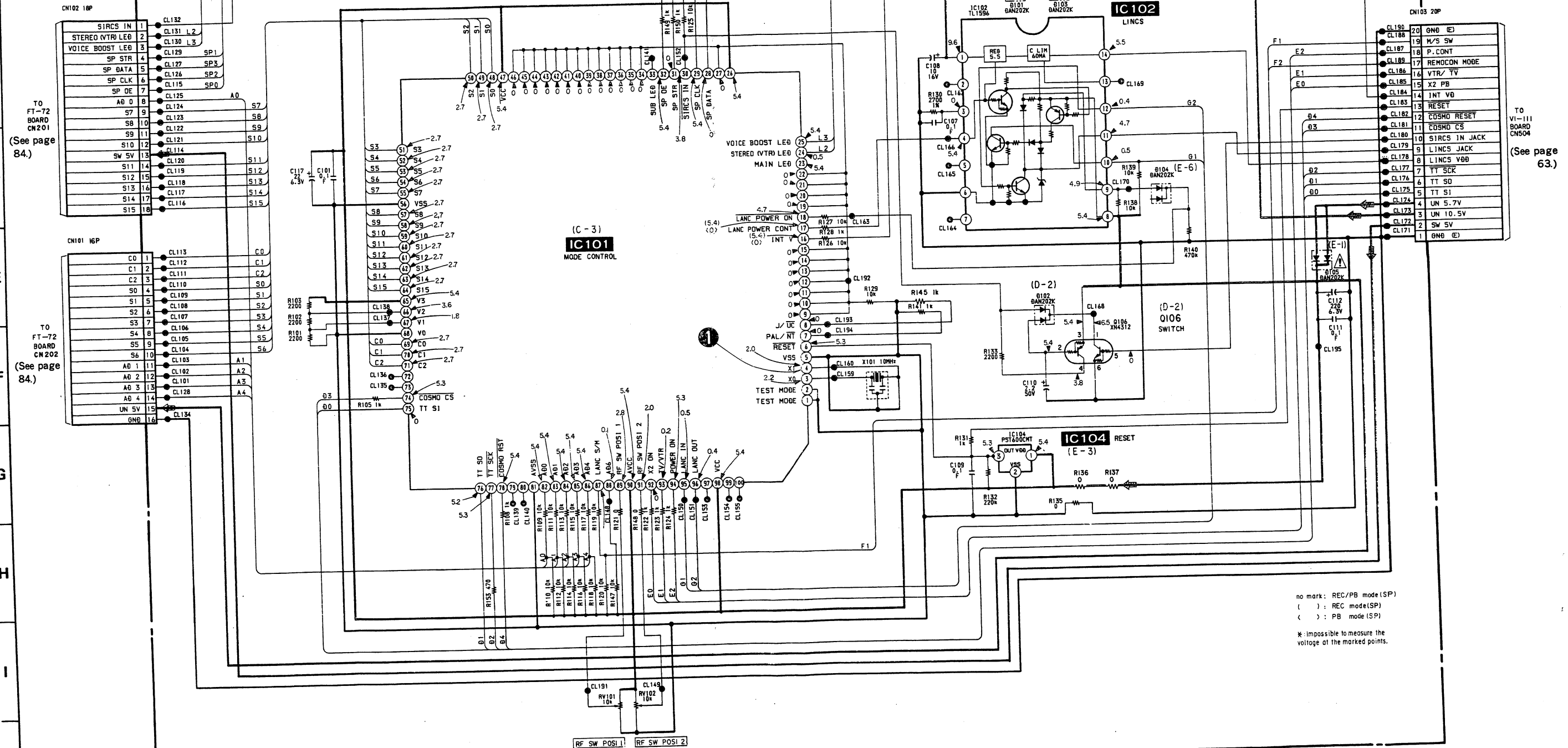
G

H

I

J

LC-38 BOARD

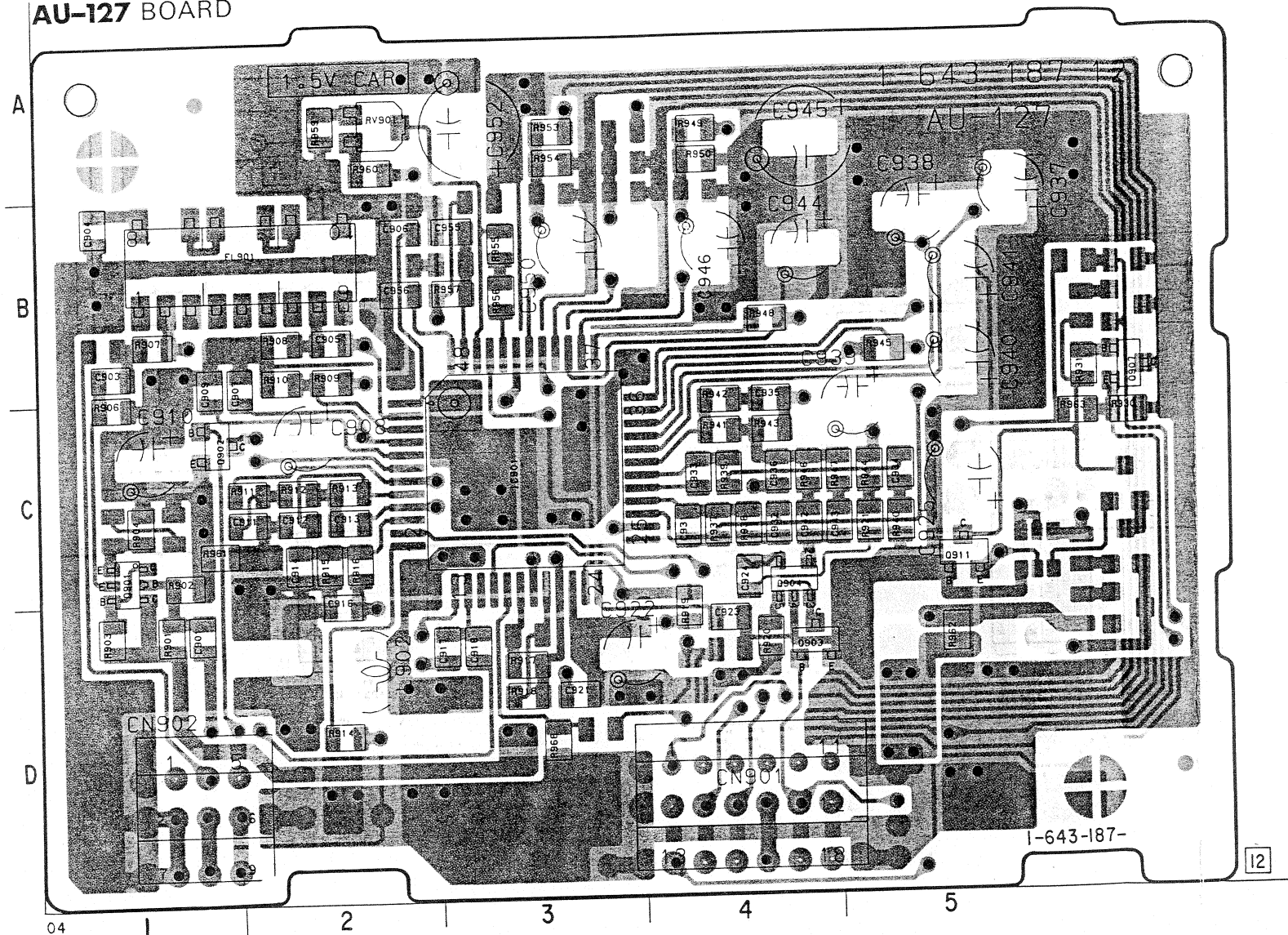


no mark: REC/PB mode (SP)  
( ): REC mode (SP)  
( ): PB mode (SP)  
\*: Impossible to measure the voltage at the marked points.

MODE CONTROL MODE CONTROL

**AU-127 (AUDIO PROCESS) PRINTED WIRING BOARD**  
—Ref.No.AU-127 BOARD: 4000 series—

**AU-127 BOARD**



● : Through hole.

< IC >  
IC901 8-752-003-79 CX20037A

< TRANSISTOR >  
Q901 8-729-402-19 XN6501  
Q902 8-729-421-19 UN2213  
Q903 8-729-421-19 UN2213  
Q904 8-729-403-07 XN1213  
Q907 8-729-202-38 2SC3326N-A

Q911 8-729-424-18 UN2113

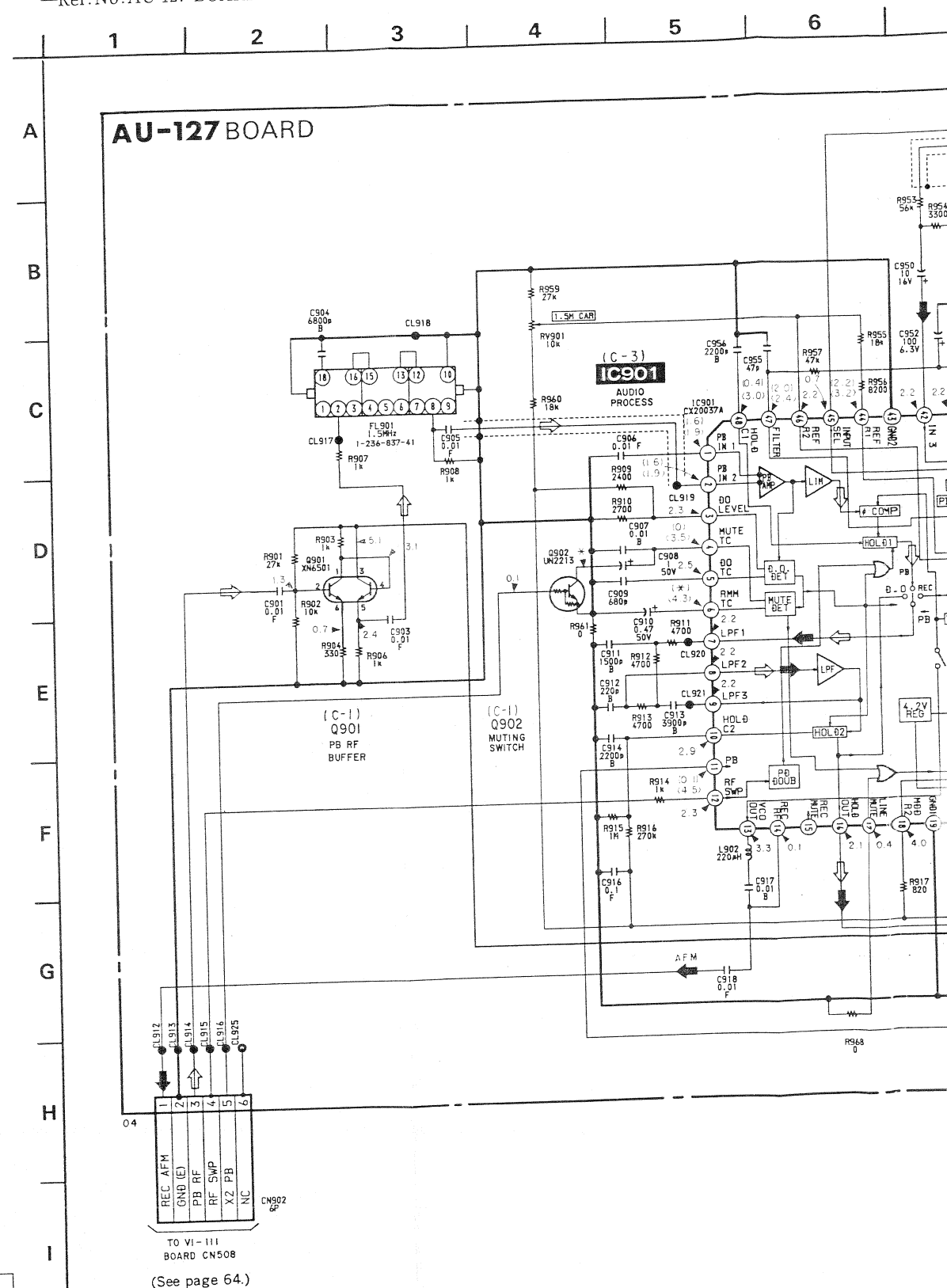
AU-127 BOARD  
IC901 C-3

Q901 C-1  
Q902 C-1  
Q903 D-4  
Q904 D-4  
Q907 C-5  
Q911 C-5

• Signal path

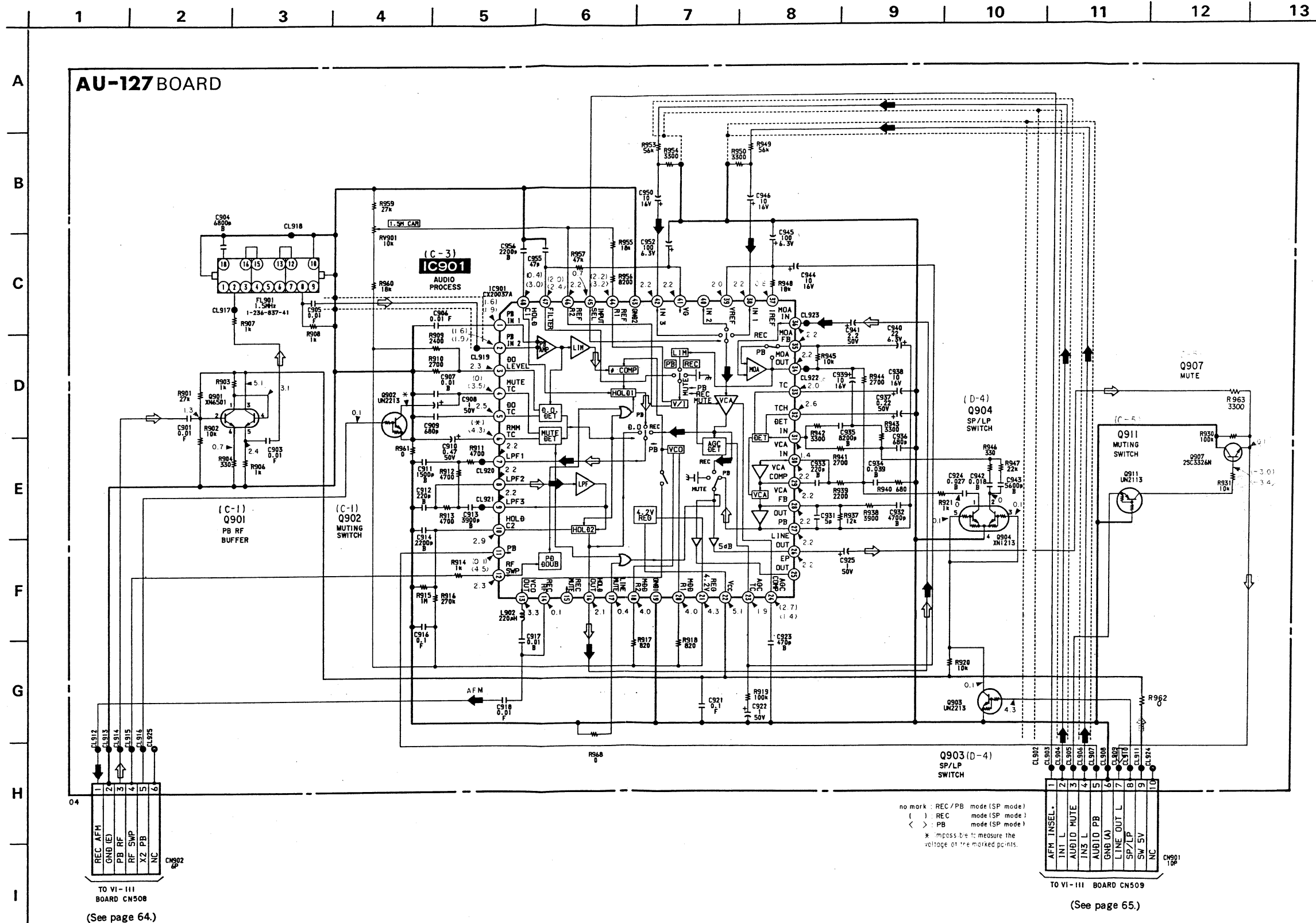
	AUDIO Signal
REC	→
PB	⇨

**AU-127 (AUDIO PROCESS) SCHEMATIC DIAGRAM**  
—Ref.No.AU-127 BOARD: 4000 series—



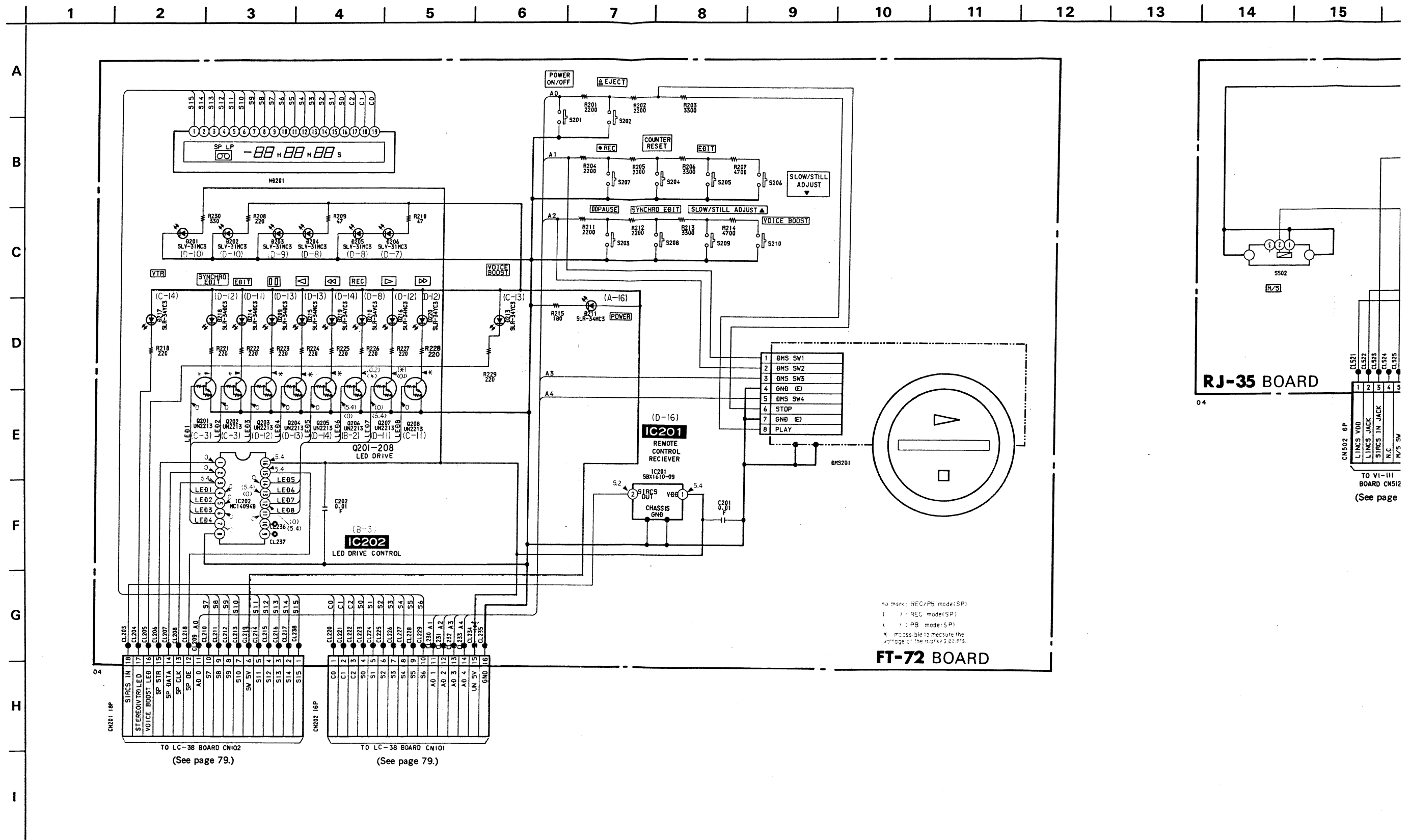
TO VI-III  
BOARD CN508  
(See page 64.)

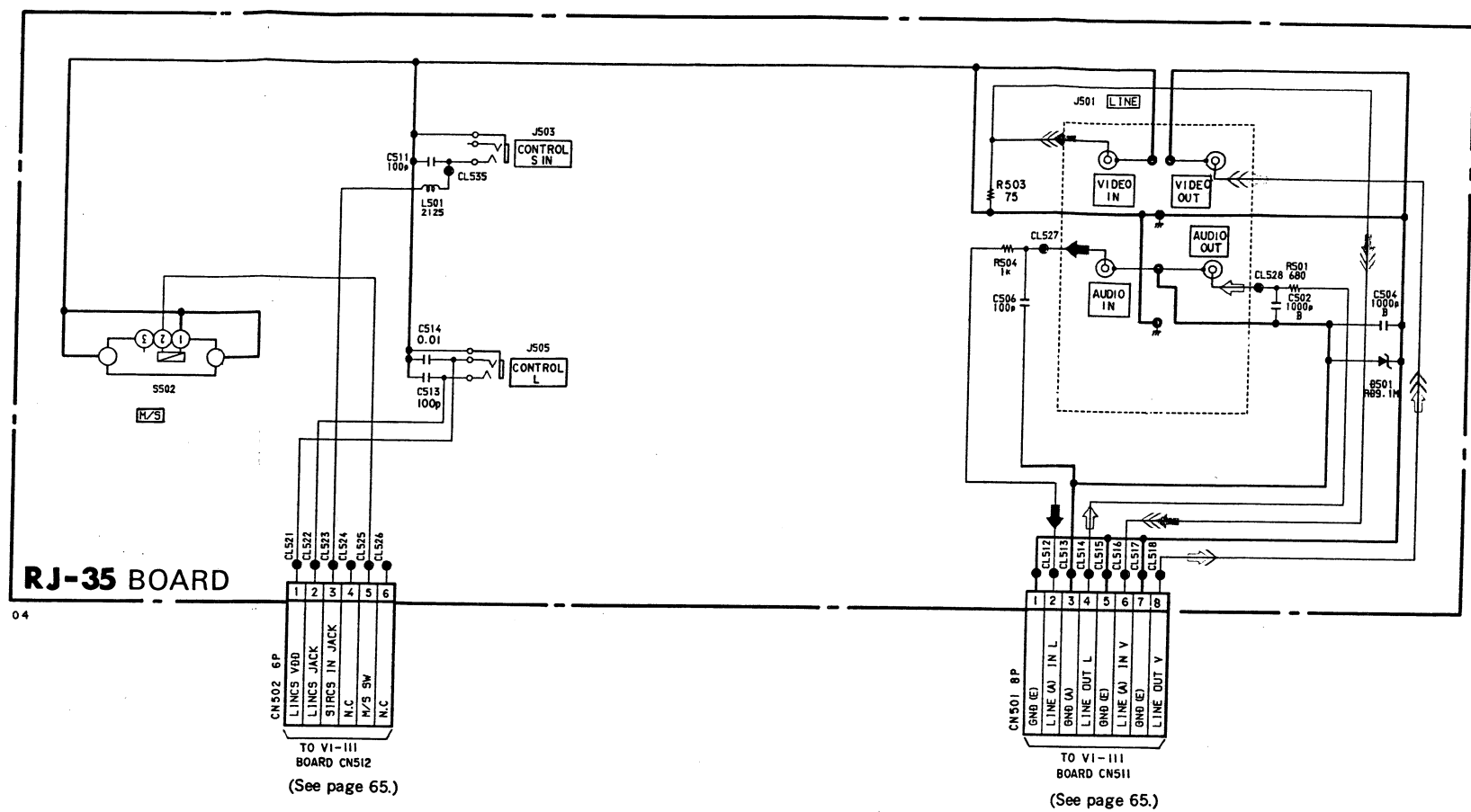
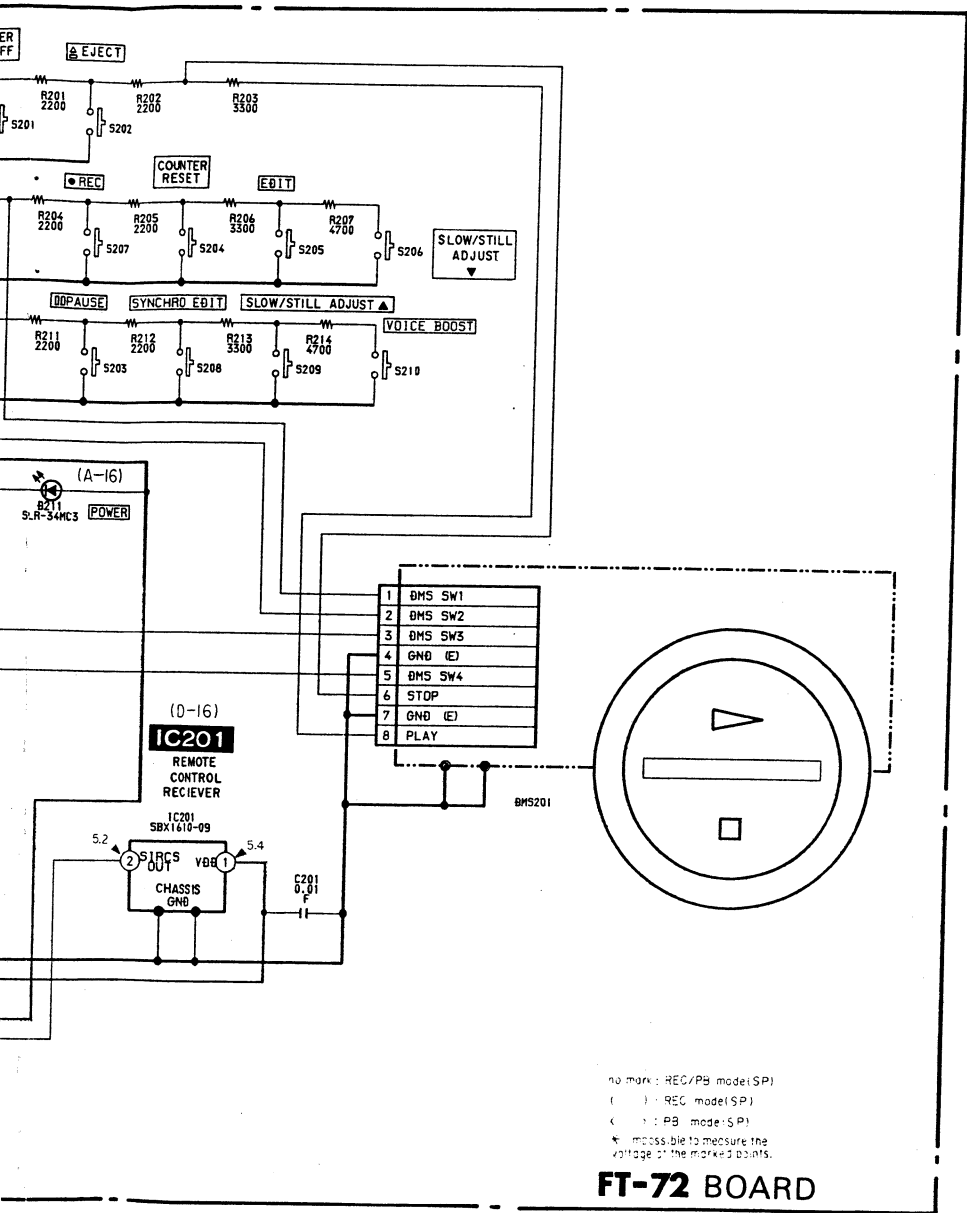
**AU-127 (AUDIO PROCESS) SCHEMATIC DIAGRAM**  
 —Ref.No.AU-127 BOARD : 4000 series—



# FT-72 (FUNCTION SWITCH), RJ-35 (IN/OUT JACK) SCHEMATIC DIAGRAM

—Ref. No. FT-72 and RJ-35 BOARD : 5000 series —



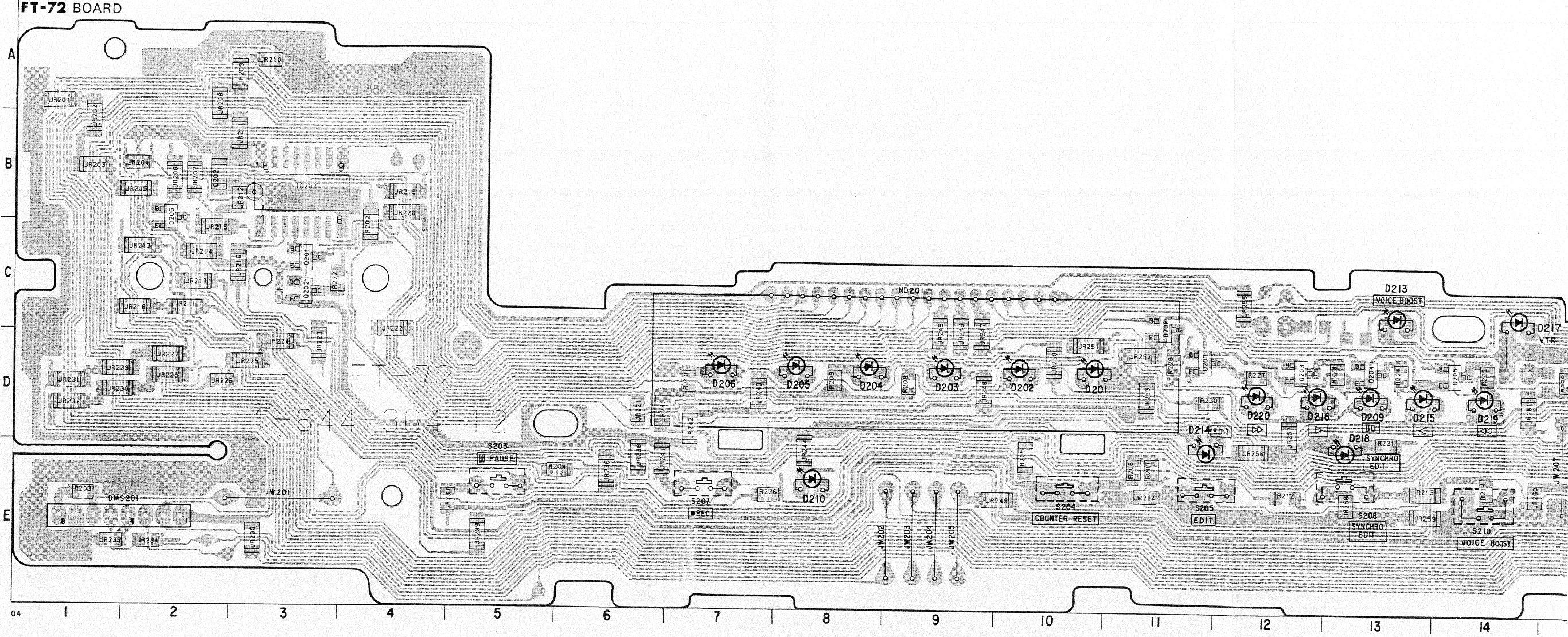


Signal path			
	REC	PB	AUDIO Signal
REC	→	→	→
PB	→	→	→



FT-72 (FUNCTION SWITCH), RJ-35 (IN/OUT JACK) PRINTED WIRING BOARDS  
—Ref.No.FT-72 and RJ-35 BOARD : 5000 series —

FT-72 BOARD  
D201 D-10  
D202 D-10  
D203 D-9  
D204 D-8  
D205 D-8  
D206 D-7  
D209 D-13  
D210 D-8  
D211 A-16  
D213 C-13  
D214 D-11  
D215 D-13  
D216 D-12  
D217 C-14  
D218 D-12  
D219 D-14  
D220 D-12  
  
IC201 D-16  
IC202 B-3  
  
Q201 C-3  
Q202 C-3  
Q203 D-12  
Q204 D-13  
Q205 D-14  
Q206 B-2  
Q207 D-11  
Q208 C-11



< DIODE >

D201	8-719-028-26	SLV-31MC3-JK	D219	8-719-812-32	TLY123 (44)
D202	8-719-028-26	SLV-31MC3-JK	D220	8-719-812-32	TLY123 (44)
D203	8-719-028-26	SLV-31MC3-JK			
D204	8-719-028-26	SLV-31MC3-JK			
D205	8-719-028-26	SLV-31MC3-JK			

< IC >

IC201	8-741-100-47	SBX1610-09
IC202	8-759-009-22	MC14094BF

< TRANSISTOR >

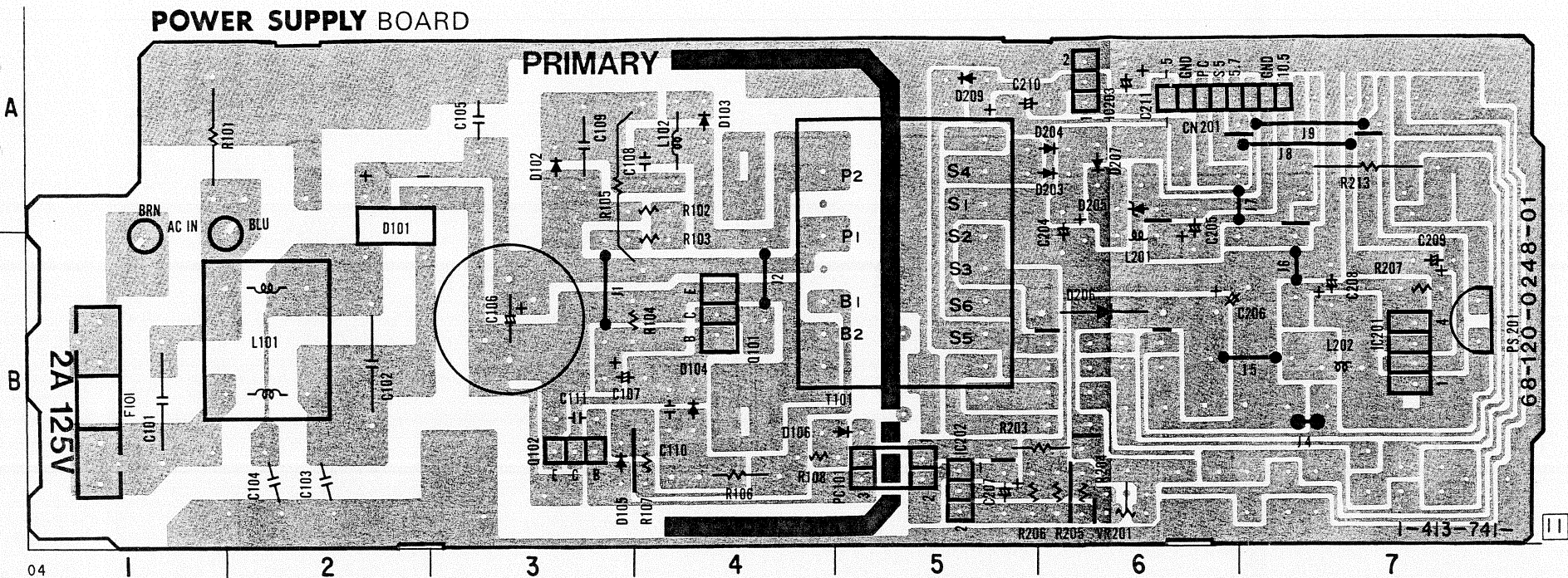
D206	8-719-028-26	SLV-31MC3-JK	Q201	8-729-421-19	UN2213
D209	8-719-946-30	SLR34DC3 (II)	Q202	8-729-421-19	UN2213
D210	8-719-940-99	SLR34VC3 (REC)	Q203	8-729-421-19	UN2213
D211	8-719-940-82	SLR34MC3 (POWER)	Q204	8-729-421-19	UN2213
D213	8-719-812-32	TLY123 (VOICE BOOST)	Q205	8-729-421-19	UN2213
D214	8-719-946-30	SLR34DC3 (EDIT)	Q206	8-729-421-19	UN2213
D215	8-719-940-82	SLR34MC3 (<)	Q207	8-729-421-19	UN2213
D216	8-719-940-82	SLR34MC3 (>)	Q208	8-729-421-19	UN2213
D217	8-719-812-32	TLY123 (VTR)			
D218	8-719-946-30	SLR34DC3 (SYNCHRO EDIT)			







POWER SUPPLY (POWER) PRINTED WIRING BOARD (US, Canadian model)  
—Ref.No. POWER SUPPLY BOARD : 6000 series—



POWER SUPPLY BOARD

D101	A-2
D102	A-3
D103	A-4
D104	B-4
D105	B-3
D106	B-4
D203	A-6
D204	A-6
D205	A-6
D206	B-6
D207	A-6
D209	A-5
IC201	B-7
IC202	B-5
IC203	A-6
PC101	B-5
Q101	B-4
Q102	B-3

< DIODE >

△D101	9-900-511-01 S1WBA60
D102	9-902-095-01 ERA15-06
D103	9-900-512-01 AG01A
D104	8-719-200-82 11ES2
D105	8-719-109-63 RD3.0ESB2
D106	9-900-514-01 MA165
D203	9-900-535-01 AU02Z
D204	9-900-535-01 AU02Z
D205	8-719-160-61 RD15FB2
D206	9-903-219-01 RK44
D207	9-900-535-01 AU02Z
D208	8-719-114-47 RD7.5JSB
D209	9-903-220-01 AK04

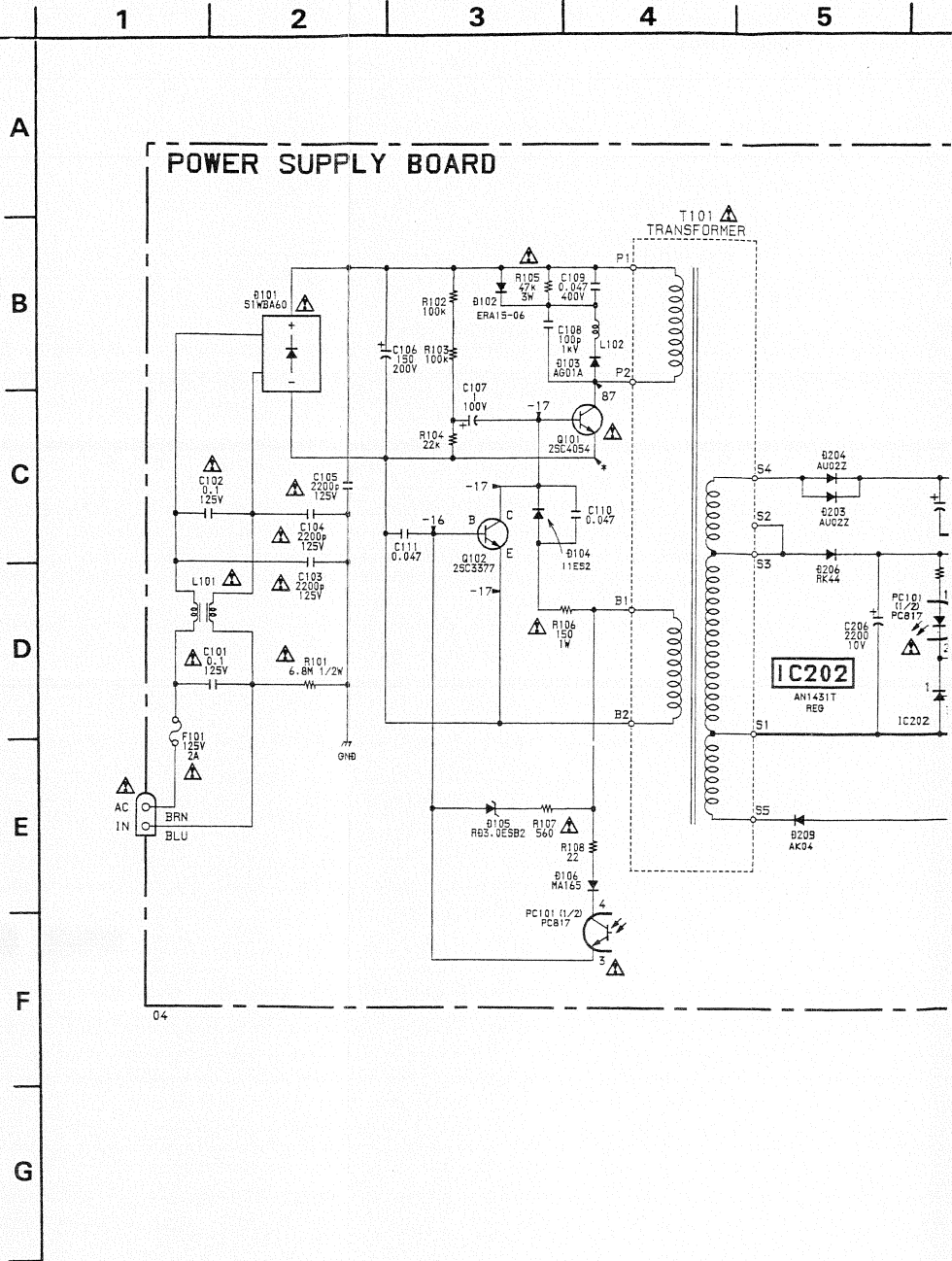
< IC >

△IC201	9-903-221-01 PQ05RF14
IC202	8-759-420-19 AN1431T
IC203	9-903-223-01 TA79L005P

< TRANSISTOR >

△Q101	9-902-096-01 2SC4054
Q102	9-900-517-01 2SC3377

POWER SUPPLY (POWER) SCHEMATIC DIAGRAM (US, Canadian model)  
—Ref.No. POWER SUPPLY BOARD : 6000 series—

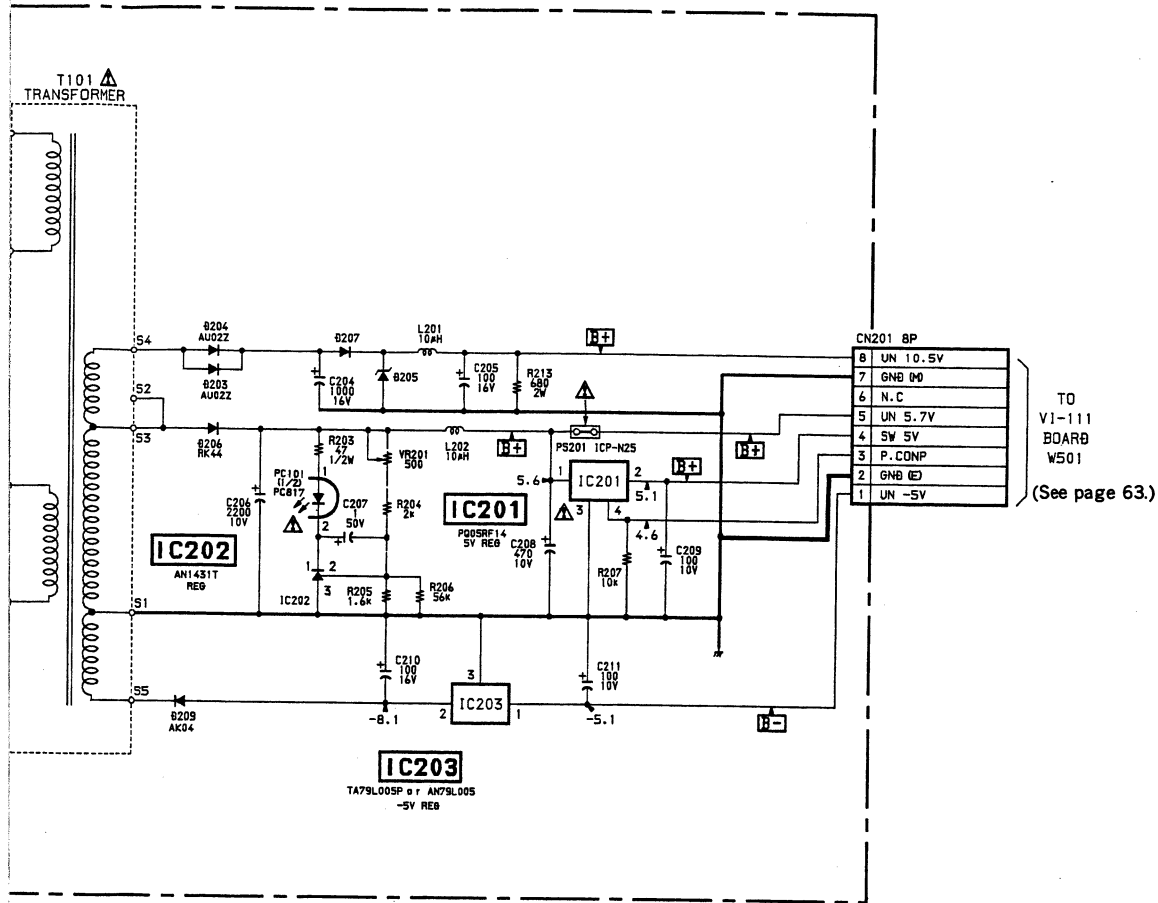


**Note :**  
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

**Note :**  
Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

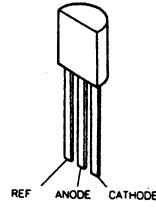


4 5 6 7 8 9 10

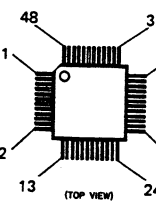


### 5-3. SEMICONDUCTORS

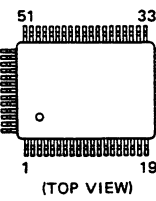
AN1431T



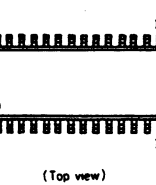
CXA1202Q-Z  
CXA1208Q  
CXA1443M  
CXA1481AQ  
CX20037A



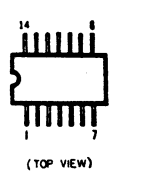
CXA1207AQ



CXA8006M

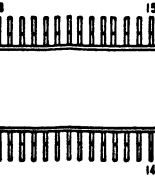


CXA8010M  
CXL5502M  
LB1836M  
TL1596CDB

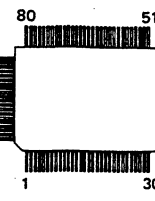


(TOP VIEW)

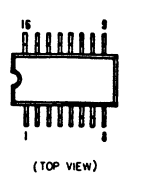
CXL1008M



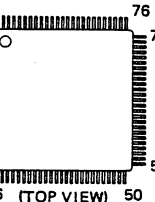
(TOP VIEW)  
CXP80624-412Q



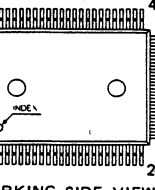
MB3775PF



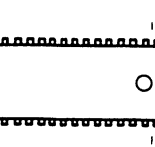
(TOP VIEW)  
MB89093



MC14094BF

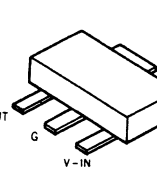


MARKING SIDE VIEW  
MCD002AM

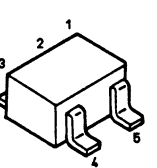


(TOP VIEW)

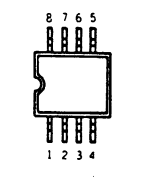
PST600CMT



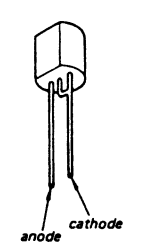
SC7504F



μPC4558G2



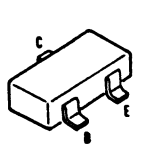
(TOP VIEW)  
μPC574J



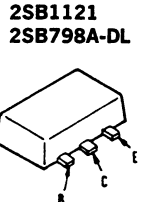
(TOP VIEW)

2SA1162-G  
2SB709A-Q  
2SC1623  
2SC2223-F13  
2SC3326N-A  
2SD601A-Q  
DTA114EK  
DTA144EK  
DTC114EK  
DTC144EK

UN2111  
UN2113  
UN2210  
UN2213  
UN2215



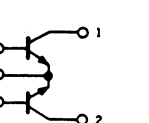
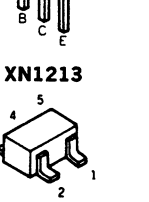
2SB1121  
2SB798A-DL



2SC3377  
2SC4054



XN1213



11ES2  
AG01A  
AU022  
ERA15-06  
MA165  
RD3.0ES-B2

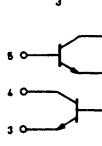
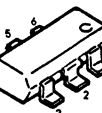


cathode  
anode

1S2836



XN4113  
XN4210  
XN4212  
XN4213  
XN4215  
XN4501

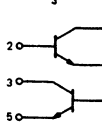


XN4312  
XN4601



NPN  
PNP

XN6501

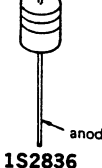


11ES2  
AG01A  
AU022  
ERA15-06  
MA165  
RD3.0ES-B2

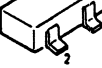
cathode

anode

1S2836



1S2836



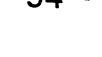
1S2836



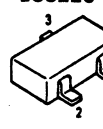
1S2836



1S2836



1SS226



DAN202K



E10DS2



1 Anode  
2 Cathode  
3 N.C

MA152WK



RB411D  
RD13M-B2  
RD5.6M-B2  
RD6.8M-B2  
RD9.1M-B2  
SB05-05CP

1S2836

1S2836

1S2836

1S2836

1S2836

1S2836

1S2836

1S2836

1S2836

1S2836

1S2836

1S2836

1S2836

1S2836

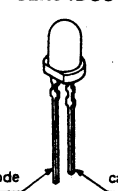
1S2836

1S2836

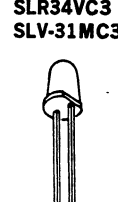
GL453JS



SLR34DC3

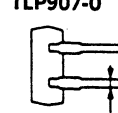


SLR34MC3  
SLR34VC3  
SLV-31MC3-JK



anode  
cathode

TLP907-0 (SONY2)



3 2  
4 1

TLY123

long  
short

anode  
cathode

anode  
cathode

anode  
cathode

anode  
cathode

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anode  
cathode

anode  
cathode

## SECTION 6 EXPLODED VIEWS

### NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- -XX and -X mean standardized parts, so they may have some difference from the original one.

- Color Indication of Appearance Parts

Example :

KNOB, BALANCE (WHITE)... (RED)

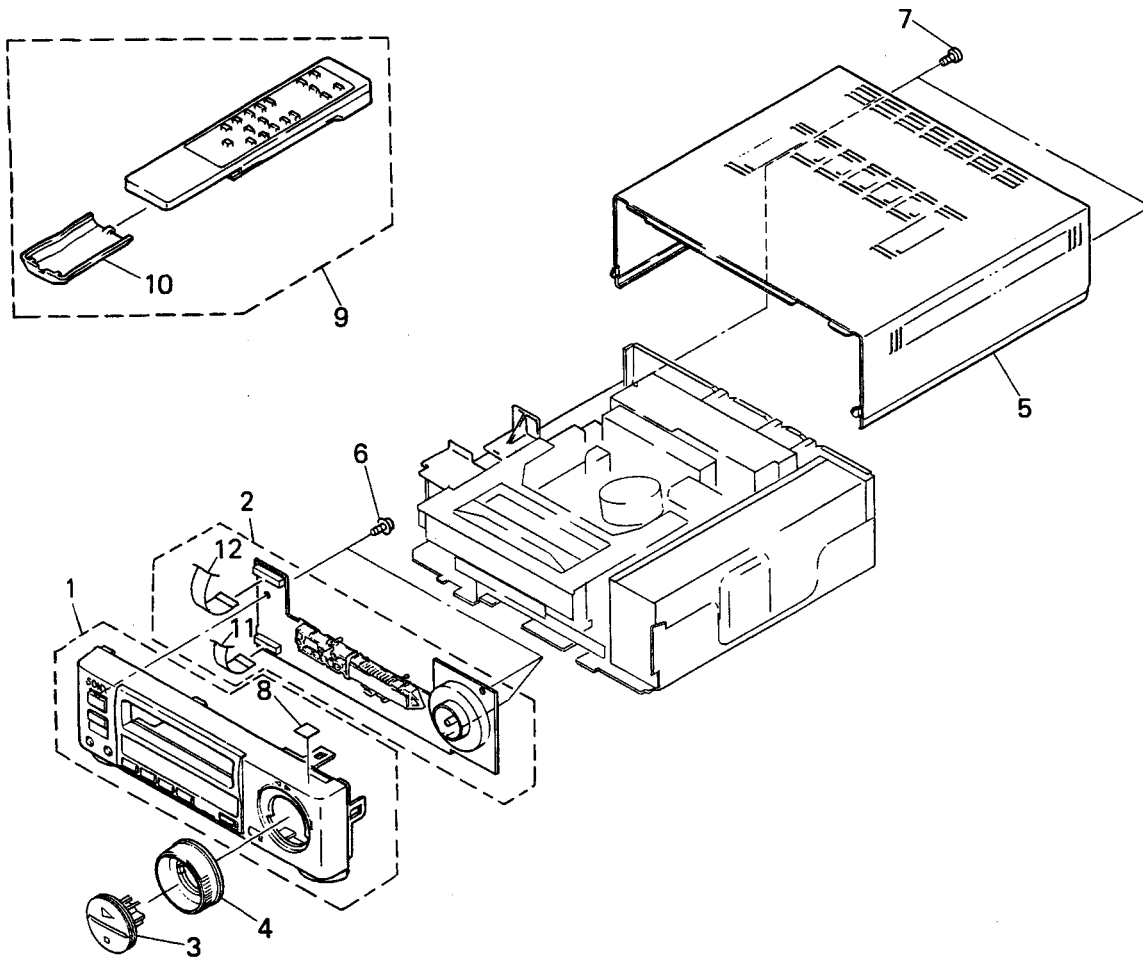
Parts Color      Cabinet's Color

- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

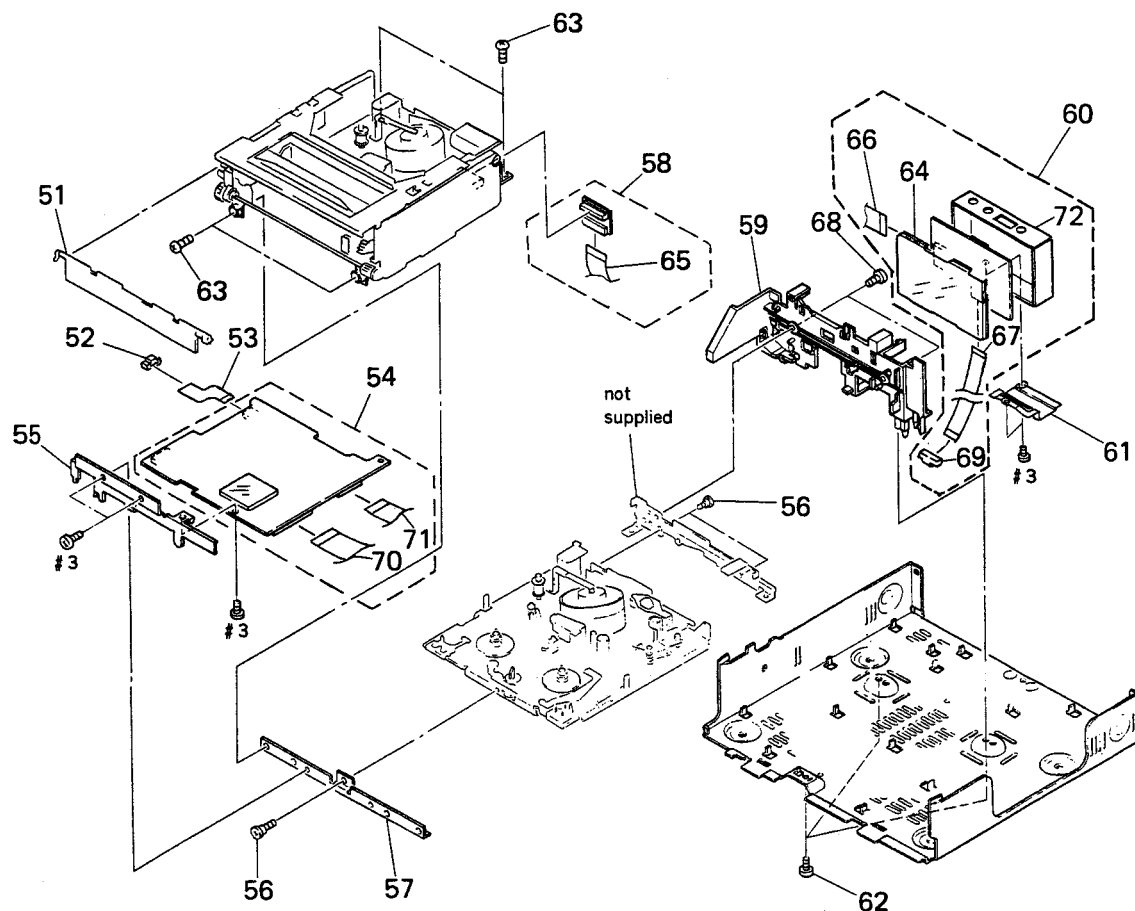
### 6-1. FRONT PANEL AND CASE ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	X-3941-744-1	PANEL ASSY, FRONT	
* 2	A-7063-208-A	FT-72 BOARD, COMPLETE	
3	X-3941-464-1	BUTTON ASSY, FUNCTION	
4	3-947-284-01	RING, SHUTTLE	
* 5	3-947-291-01	CASE, UPPER	
6	3-669-480-21 + PTPWH 2		

Ref. No.	Part No.	Description	Remark
7	3-948-500-01	SCREW, BV (3X10) RING	
* 8	3-703-713-41	STICKER, SONY SYMBOL (10)	
9	1-693-135-11	REMOTE COMMANDER (RMT-V124A)	
10	2-181-754-01	COVER, BATTERY	
11	1-690-800-11	CABLE, FLAT (FFT-4) 16P	
12	1-690-799-11	CABLE, FLAT (FFT-3) 18P	

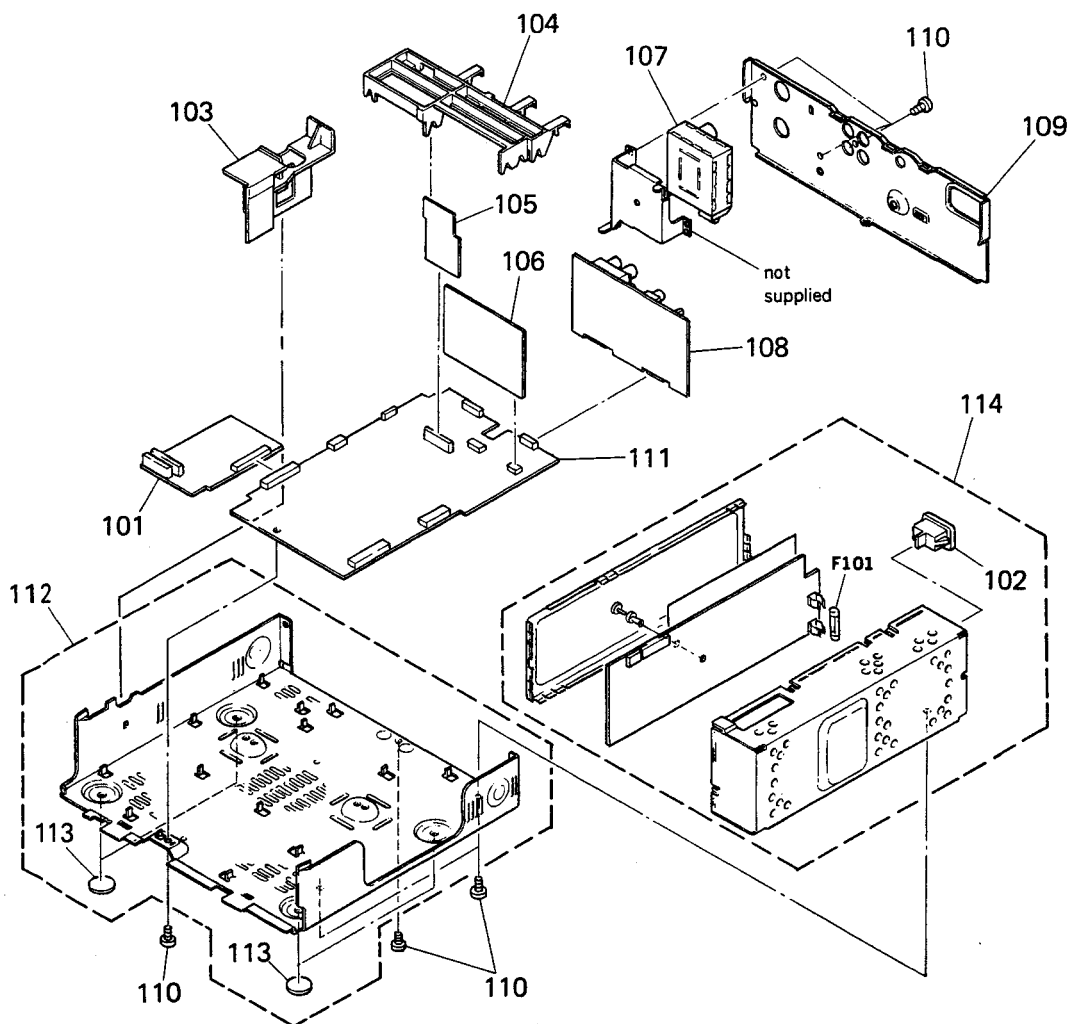
## 6-2. CHASSIS FRAME ASSEMBLY



Ref. No.	Part No.	Description	Remark
51	3-947-278-01	WINDOW, CASSETTE COMPARTMENT	
52	1-569-346-11	CONNECTOR, FPC(TRANSLATION) 10P	
53	1-643-189-11	FP-503 FLEXIBLE BOARD	
* 54	A-7063-207-A	SS-144 BOARD, COMPLETE	
* 55	3-947-273-01	FRAME (FRONT), MD	
56	3-732-816-01	SCREW, STEP	
* 57	3-732-810-02	BRACKET (FRONT)	
58	A-7063-089-A	CC-71 BOARD, COMPLETE	
* 59	3-947-275-11	FRAME, RP	
60	A-7063-088-A	RP-134 BOARD, COMPLETE	
* 61	3-947-276-01	PLATE (MD), GROUND	

Ref. No.	Part No.	Description	Remark
62	3-948-500-01	SCREW, BV (3X10) RING	
63	3-732-817-01	SCREW (2X4.5), TAPPING	
* 64	3-947-292-01	CASE (LID), SHIELD, RP	
65	1-690-805-11	CABLE, FLAT (FCS-3) 15P	
66	1-690-803-11	CABLE, FLAT (FRS-9) 13P	
67	1-643-188-11	FP-502 FLEXIBLE BOARD	
68	3-719-381-01	SCREW (M2X4)	
69	1-569-347-11	CONNECTOR, FPC (TRANSLATION) 13P	
70	1-690-801-11	CABLE, FLAT (FSV-1) 24P	
71	1-696-042-11	CABLE, FLAT (FSV-4) 13P	
* 72	3-947-293-01	CASE (MAIN), SHIELD, RP	

### 6-3. MAIN BOARDS AND POWER BLOCK ASSEMBLIES



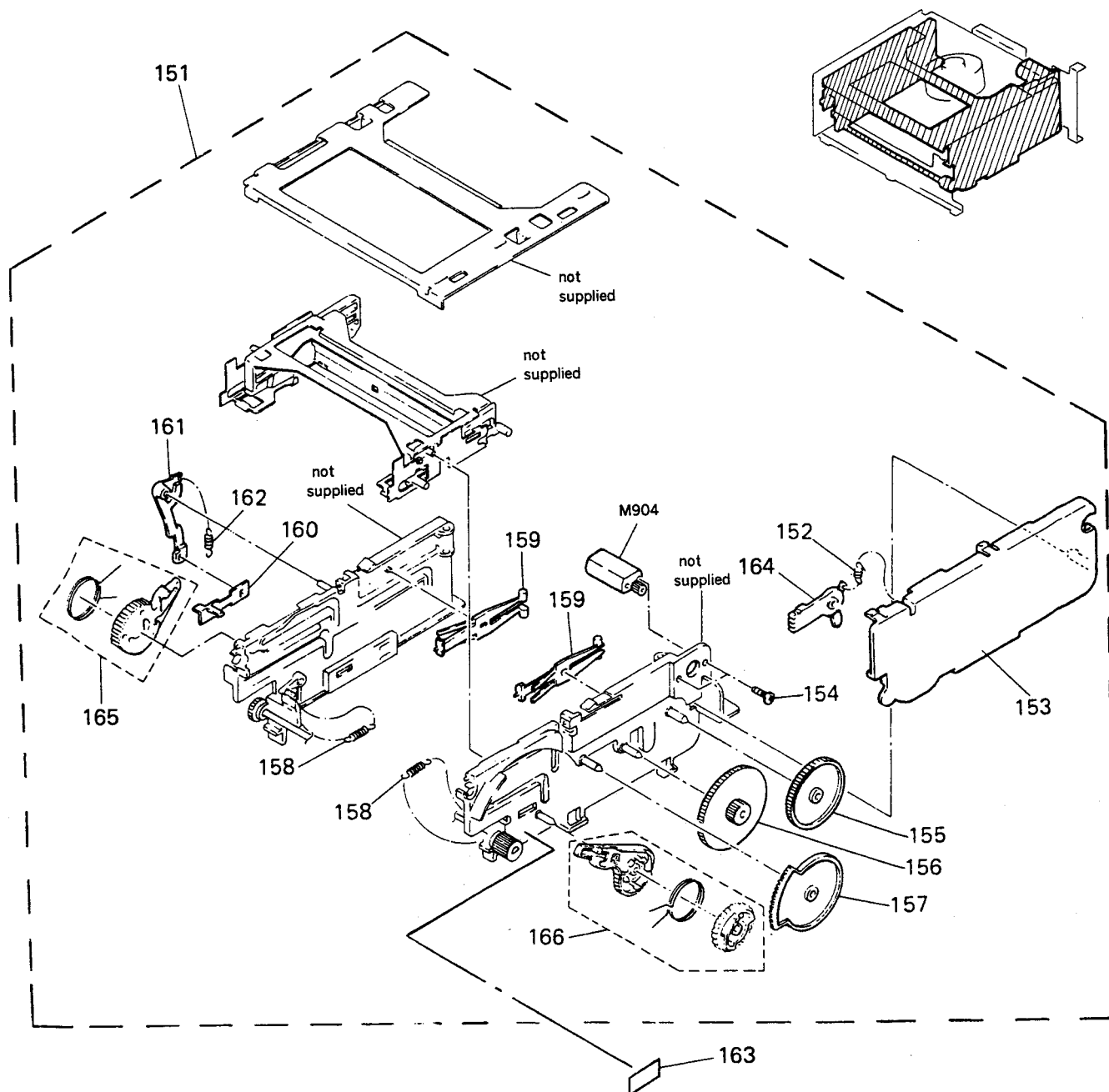
The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
* 101	A-7063-209-A	LC-38 BOARD, COMPLETE	
$\Delta$ 102	1-526-985-11	AC INLET (US, Canadian)	
103	3-947-283-01	HOLDER, MAC	
* 104	3-947-294-01	HOLDER, PC BOARD	
105	A-7063-095-A	NJ-4 BOARD, COMPLETE	
106	A-7063-094-A	AU-127 BOARD, COMPLETE	
$\Delta$ 107	1-466-646-11	MODULATOR, RF (RFU-1042)	
* 108	A-7063-210-A	RJ-35 BOARD, COMPLETE	

Ref. No.	Part No.	Description	Remark
* 109	3-947-274-11	FRAME, REAR (US, Canadian)	
* 109	3-947-274-91	FRAME, REAR (PX)	
110	3-948-500-01	SCREW, BV (3X10) RING	
* 111	A-7063-211-A	VI-111 BOARD, COMPLETE	
* 112	X-3941-463-1	PLATE ASSY, BOTTOM	
113	3-940-657-01	FOOT (FELT)	
114	1-413-741-11	POWER BLOCK (US, Canadian)	
114	1-413-780-11	POWER BLOCK (PX)	
$\Delta$ F101	1-532-743-11	FUSE, TIMER-LAG 2A 125V (US, Canadian)	

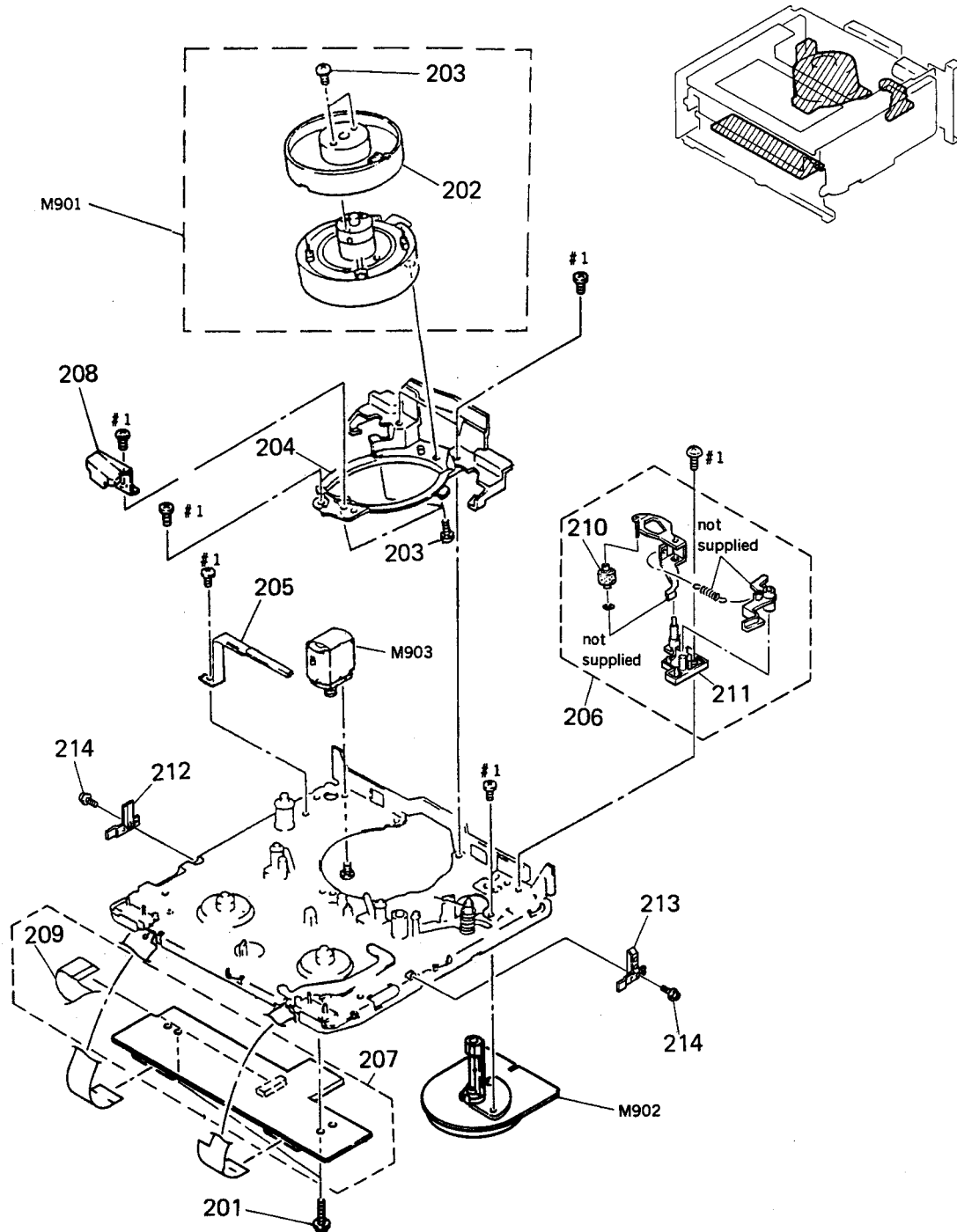
## 6-4. CASSETTE COMPARTMENT ASSEMBLY



Ref. No.	Part No.	Description	Remark
* 151	A-7091-647-A	CASSETTE COMPARTMENT ASSY, FL	
152	3-731-175-02	SPRING, TENSION	
153	3-732-804-03	COVER, GEAR	
154	3-730-141-01	SCREW (PSW) (2X4)	
155	3-731-182-01	GEAR (B), DECELERATION	
156	3-731-181-01	GEAR (A), DECELERATION	
157	3-731-192-01	GEAR, MIDWAY	
158	3-731-176-02	SPRING, TENSION	
159	3-731-184-02	HOLDER LOCK	

Ref. No.	Part No.	Description	Remark
160	3-731-189-01	SLIDER, LOCK	
161	3-731-188-01	ARM LOCK, DRIVING	
162	3-731-174-01	SPRING, TENSION	
* 163	3-730-176-01	SHEET, MD	
164	3-731-185-01	LINK, SWITCHING, DOOR	
165	X-3731-111-1	ARM (LEFT) ASSY, DRIVING	
166	X-3731-109-2	ARM (RIGHT) ASSY, DRIVING	
M904	X-3731-108-1	FL MOTOR ASSY	

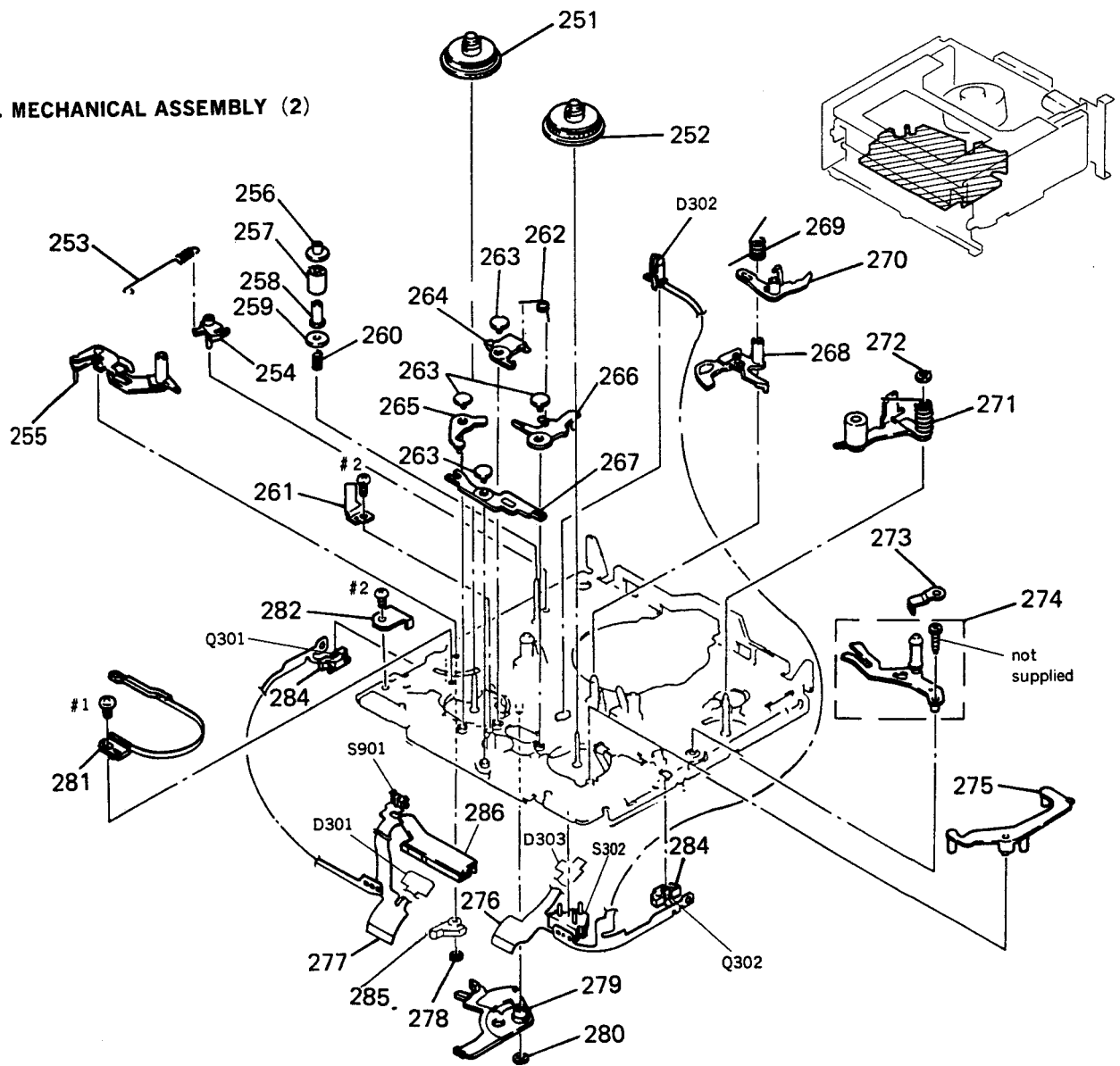
## 6-5. MECHANICAL ASSEMBLY (1)



Ref.No.	Part No.	Description	Remark
201	3-713-790-21	SCREW (M2X6), TAPPING, P3	
202	A-7049-531-A	DRUM ASSY, ROTARY (UPPER) (DGR-75B-R)	
203	3-686-493-01	SCREW (M2X5), P1	
204	X-3686-482-5	BASE ASSY, DRUM	
205	X-3728-864-1	GROUND ASSY, SHAFT	
206	A-7040-207-A	ROLLER BLOCK ASSY, HC	
* 207	A-7063-182-A	UC-13 BOARD, COMPLETE	
208	3-728-868-01	GUARD, GUIDE	
209	1-690-804-11	CABLE, FLAT (FUS-2) 14P	

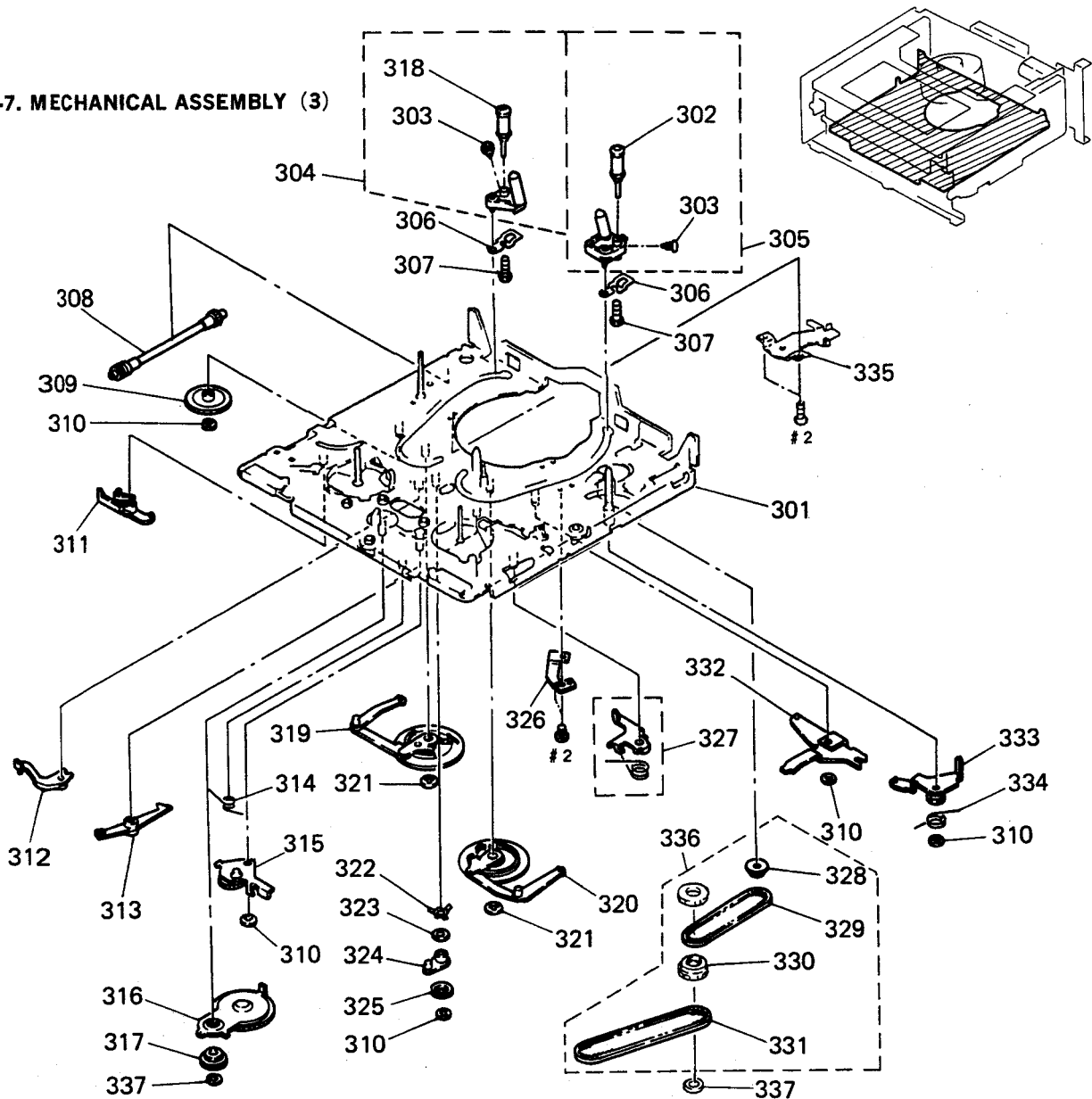
Ref.No.	Part No.	Description	Remark
210	X-3728-861-1	ROLLER ASSY, HC	
211	3-741-198-01	PLATE, HC	
212	X-3726-867-1	PRISM (LEFT) ASSY	
213	X-3726-866-1	PRISM (RIGHT) ASSY	
214	3-732-087-31	SCREW (M1.4X1.8), SPECIAL HEAD	
M901	A-7048-596-A	DRUM ASSY (DGR-75B-R)	
M902	8-835-331-31	MOTOR, DC U-22A (CAPSTAN)	
M903	A-7040-290-A	MOTOR ASSY, THREADING (LOADING)	

## 6-6. MECHANICAL ASSEMBLY (2)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
251	X-3728-851-1	TABLE ASSY, REEL, S		272	3-669-465-00	WASHER (1.5), STOPPER	
252	X-3728-855-6	TABLE ASSY, REEL, T		273	3-728-808-01	SPRING, LEAF	
253	3-736-414-01	SPRING, TENSION		274	X-3728-869-1	ARM ASSY, TG7	
254	3-728-855-03	ARM, ADJUSTMENT		275	3-728-848-01	ARM, LB RELEASE	
255	X-3728-867-1	ARM ASSY (S), TENSION REGULATOR		276	1-628-061-12	FP-90 FLEXIBLE BOARD	
256	3-726-884-01	FLANGE, UPPER, TG2		277	1-628-060-12	FP-89 FLEXIBLE BOARD	
257	3-726-883-01	ROLLER, TG2		278	3-321-393-11	WASHER, STOPPER	
258	3-726-885-01	SLEEVE, TG2		279	X-3728-863-1	LEVER ASSY, SW	
259	3-726-882-02	FLANGE, LOWER, TG2		280	3-726-829-01	WASHER, STOPPER	
260	3-726-886-01	SPRING, COMPRESSION		281	X-3728-859-1	BAND ASSY, TENSION REGULATOR	
261	3-726-848-01	RETAINER, TL		282	3-730-125-01	RETAINER, SW	
262	3-726-866-01	SPRING (ST), TORSION		284	3-728-869-02	HOLDER, SENSOR	
263	3-726-858-01	PIN, SHAFT RETAINER		285	X-3728-857-1	STOPPER ASSY, TENSION REGULATOR	
264	3-728-849-01	BRAKE, S		286	1-572-173-11	SWITCH, SLIDE (ENCODER)	
265	3-726-852-01	BRAKE, LB		D301	8-719-820-44	DIODE TLP907-0 (SONY2)	
266	3-728-850-01	BRAKE, T		D302	8-719-026-04	DIODE GL453JS (including LED HOLDER)	
267	3-726-853-01	LEVER, LB		D303	8-719-820-44	DIODE TLP907-0 (SONY2)	
268	3-728-875-01	STOPPER, RK		Q301	8-729-906-48	TRANSISTOR EE-TP109	
269	3-726-864-01	SPRING (RK), TORSION		Q302	8-729-906-48	TRANSISTOR EE-TP109	
270	3-728-852-02	ARM, RK STOPPER		S302	1-572-298-11	SWITCH, PUSH	
271	A-7040-219-A	ARM BLOCK ASSY, PINCH		S901	1-571-099-11	SWITCH	

# 6-7. MECHANICAL ASSEMBLY (3)



Ref.No.	Part No.	Description	Remark
301	X-3728-862-1	CHASSIS ASSY, MECHANICAL	
302	X-3728-808-4	ROLLER ASSY (U) (PLATING), GUIDE	
303	3-726-822-01	SCREW (M1.4X2) (STEP), HEAD	
304	A-7040-204-A	COASTER (LEFT) BLOCK ASSY	
305	A-7040-216-A	COASTER (RIGHT) BLOCK ASSY (M1P)	
306	3-736-485-01	SPRING, LEAF, COSTER	
307	3-726-830-01	SCREW (M1.4X4) (THREE LOCK)	
308	X-3940-276-2	WORM ASSY	
309	3-744-109-01	GEAR, WHEEL	
310	3-726-829-01	WASHER, STOPPER	
311	3-728-842-01	LEVER, EJECT	
312	3-728-851-01	BRAKE, UL	
313	3-726-854-01	ARM, BRAKE RELEASE	
314	3-726-865-01	SPRING (LB), TORSION	
315	A-7040-225-A	GEAR BLOCK ASSY (N), LB	
316	X-3728-866-1	GEAR ASSY, RK	
317	X-3728-858-2	GEAR ASSY, RC	
318	X-3726-879-4	ROLLER ASSY ((U)-NB), GUIDE	
319	X-3728-842-1	GEAR (LEFT) ASSY, DRIVE	

Ref.No.	Part No.	Description	Remark
320	X-3728-843-1	GEAR (RIGHT) ASSY, DRIVE	
321	3-669-465-00	WASHER (1.5), STOPPER	
322	3-726-867-01	SPRING, LEAF	
323	3-701-436-21	WASHER, POLYETHYLENE	
324	3-726-857-03	ARM, UL	
325	3-726-856-04	GEAR, UL	
* 326	3-726-805-01	REINFORCEMENT (TT)	
327	X-3726-808-3	BRAKE ASSY, TS	
328	X-3726-805-1	GEAR ASSY, JOINT	
329	3-728-866-11	BELT (S), TIMING	
330	3-741-196-02	PULLEY (LOWER), BELT MIDWAY	
331	3-741-197-01	BELT (L), TIMING	
332	3-941-322-01	LEVER, LOADING	
333	X-3940-279-1	ARM ASSY, PINCH SUB	
334	3-726-895-01	SPRING	
335	X-3940-278-1	REINFORCEMENT (SS) ASSY	
336	X-3726-813-4	PULLEY (UPPER) ASSY, MIDWAY	
337	3-321-393-11	WASHER, STOPPER	



# SECTION 7

## ELECTRICAL PARTS LIST

## NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...:  $\mu$ A. uPA...:  $\mu$ PA.  
uPB...:  $\mu$ PB. uPC...:  $\mu$ PC. uPD...:  $\mu$ PD.
- CAPACITORS  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité.

Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
	A-7063-094-A	AU-127 BOARD, COMPLETE ***** (Ref. No. 4000 series)	
		< CAPACITOR >	
C901	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C903	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C904	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V
C905	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C906	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C907	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C908	1-126-301-11	ELECT 1uF	20% 50V
C909	1-163-137-00	CERAMIC CHIP 680PF	5% 50V
C910	1-124-465-00	ELECT 0.47uF	20% 50V
C911	1-163-011-11	CERAMIC CHIP 0.0015uF	10% 50V
C912	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C913	1-163-016-00	CERAMIC CHIP 0.0039uF	10% 50V
C914	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V
C916	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C917	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C918	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C921	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C922	1-126-301-11	ELECT 1uF	20% 50V
C923	1-163-005-11	CERAMIC CHIP 470PF	10% 50V
C924	1-163-986-00	CERAMIC CHIP 0.027uF	10% 25V
C925	1-126-301-11	ELECT 1uF	20% 50V
C931	1-163-088-00	CERAMIC CHIP 5PF	50V
C932	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C933	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C934	1-162-587-11	CERAMIC CHIP 0.039uF	10% 25V
C935	1-163-020-00	CERAMIC CHIP 0.0082uF	10% 50V
C936	1-163-137-00	CERAMIC CHIP 680PF	5% 50V
C937	1-124-464-11	ELECT 0.22uF	20% 50V
C938	1-126-157-11	ELECT 10uF	20% 16V
C939	1-126-157-11	ELECT 10uF	20% 16V
C940	1-124-638-11	ELECT 22uF	20% 10V
C941	1-124-257-00	ELECT 2.2uF	20% 50V
C942	1-163-024-00	CERAMIC CHIP 0.018uF	10% 50V
C943	1-163-018-00	CERAMIC CHIP 0.0056uF	5% 50V
C944	1-126-157-11	ELECT 10uF	20% 16V

Ref. No.	Part No.	Description	Remark
C945	1-126-177-11	ELECT 100uF	20% 10V
C946	1-126-157-11	ELECT 10uF	20% 16V
C950	1-126-157-11	ELECT 10uF	20% 16V
C952	1-126-177-11	ELECT 100uF	20% 10V
C955	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C956	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V
		< CONNECTOR >	
* CN901	1-562-639-11	SOCKET, CONNECTOR 10P	
* CN902	1-562-637-11	SOCKET, CONNECTOR 6P	
		< FILTER >	
FL901	1-236-837-21	FILTER, BAND PASS	
		< IC >	
IC901	8-752-003-79	IC CX20037A	
		< COIL >	
L902	1-408-948-00	INDUCTOR 220uH	
		< TRANSISTOR >	
Q901	8-729-402-19	TRANSISTOR XN6501	
Q902	8-729-421-19	TRANSISTOR UN2213	
Q903	8-729-421-19	TRANSISTOR UN2213	
Q904	8-729-403-07	TRANSISTOR XN1213	
Q907	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q911	8-729-424-18	TRANSISTOR UN2113	
		< RESISTOR >	
R901	1-216-083-00	METAL CHIP 27K	5% 1/10W
R902	1-216-073-00	METAL CHIP 10K	5% 1/10W
R903	1-216-049-00	METAL CHIP 1K	5% 1/10W
R904	1-216-037-00	METAL CHIP 330	5% 1/10W
R906	1-216-049-00	METAL CHIP 1K	5% 1/10W
R907	1-216-049-00	METAL CHIP 1K	5% 1/10W
R908	1-216-049-00	METAL CHIP 1K	5% 1/10W
R909	1-216-058-00	METAL GLAZE 2.4K	5% 1/10W
R910	1-216-059-00	METAL CHIP 2.7K	5% 1/10W

AU-127

CC-71

FP-89

FP-90

Ref.No.	Part No.	Description	Remark
R911	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R912	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R913	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R914	1-216-049-00	METAL CHIP	1K 5% 1/10W
R915	1-216-121-00	METAL CHIP	1M 5% 1/10W
R916	1-216-107-00	METAL CHIP	270K 5% 1/10W
R917	1-216-047-00	METAL CHIP	820 5% 1/10W
R918	1-216-047-00	METAL CHIP	820 5% 1/10W
R919	1-216-097-00	METAL CHIP	100K 5% 1/10W
R920	1-216-073-00	METAL CHIP	10K 5% 1/10W
R921	1-216-049-00	METAL CHIP	1K 5% 1/10W
R930	1-216-097-00	METAL CHIP	100K 5% 1/10W
R931	1-216-073-00	METAL CHIP	10K 5% 1/10W
R937	1-216-075-00	METAL CHIP	12K 5% 1/10W
R938	1-216-063-00	METAL CHIP	3.9K 5% 1/10W
R939	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
R940	1-216-045-00	METAL CHIP	680 5% 1/10W
R941	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
R942	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R943	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R944	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
R945	1-216-073-00	METAL CHIP	10K 5% 1/10W
R946	1-216-037-00	METAL CHIP	330 5% 1/10W
R947	1-216-081-00	METAL CHIP	22K 5% 1/10W
R948	1-216-079-00	METAL CHIP	18K 5% 1/10W
R949	1-216-091-00	METAL CHIP	56K 5% 1/10W
R950	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R953	1-216-091-00	METAL CHIP	56K 5% 1/10W
R954	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R955	1-216-079-00	METAL CHIP	18K 5% 1/10W
R956	1-216-071-00	METAL CHIP	8.2K 5% 1/10W
R957	1-216-089-00	METAL CHIP	47K 5% 1/10W
R959	1-216-083-00	METAL CHIP	27K 5% 1/10W
R960	1-216-079-00	METAL CHIP	18K 5% 1/10W
R961	1-216-295-00	METAL CHIP	0 5% 1/10W
R962	1-216-295-00	METAL CHIP	0 5% 1/10W
R963	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R968	1-216-295-00	METAL CHIP	0 5% 1/10W

&lt; VARIABLE RESISTOR &gt;

RV901 1-238-090-11 RES, ADJ, CERMET 10K

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Ref.No.	Part No.	Description	Remark
	A-7063-089-A	CC-71 BOARD, COMPLETE	
		*****	
		(Ref. No. 2000 series)	
	1-690-805-11	CABLE, FLAT (FCS-3) 15P	
		< CONNECTOR >	
* CN701	1-562-880-21	CONNCOCTR, CARD EDGE 15P	
CN702	1-566-547-11	CONNECTOR, FPC (NON ZIF) 15P	
		*****	
	1-628-060-12	FP-89 FLEXIBLE BOARD	
		*****	
		(Ref. No. 2000 series)	
	3-728-869-02	HOLDER SENSOR	
		< DIODE >	
D301	8-719-820-44	DIODE TLP907-0 (SONY2)	
		< TRANSISTOR >	
Q301	8-729-906-48	TRANSISTOR EE-TP109	
		< SWITCH >	
S301	1-572-173-11	SWITCH SLIDE (ENCODER)	
S303	1-571-099-11	SWITCH (CC DOWN)	
		*****	
	1-628-061-12	FP-90 FLEXIBLE BOARD	
		*****	
		(Ref. No. 2000 series)	
	3-728-869-02	HOLDER SENSOR	
		< DIODE >	
D302	8-719-026-04	DIODE GL-453JS (including LED HOLDER)	
D303	8-719-820-41	DIODE TLP907-0 (SONY2)	
		< TRANSISTOR >	
Q302	8-729-906-48	TRANSISTOR EE-TP109	
		< SWITCH >	
S302	1-572-298-11	SWITCH PUSH (REC PROOF/TAPE SELECT)	
		*****	

Ref. No.	Part No.	Description	Remark
*	A-7063-208-A	FT-72 BOARD, COMPLETE ***** (Ref. No. 5000 series)	

1-690-799-11 CABLE, FLAT (FFT-3) 18P  
1-690-800-11 CABLE, FLAT (FFT-4) 16P

*	3-948-364-01	HOLDER (CX), INDICATION TUBE	
*	3-948-365-01	ILLUMINATOR (CX)	

< CAPACITOR >

C201	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C202	1-163-059-00	CERAMIC CHIP 0.01uF 10%	50V

< CONNECTOR >

* CN201	1-691-050-21	HOUSING, CONNECTOR 18P	
CN202	1-569-933-11	HOUSING, CONNECTOR 16P	

< DIODE >

D201	8-719-028-26	DIODE SLV-31MC3-JK	
D202	8-719-028-26	DIODE SLV-31MC3-JK	
D203	8-719-028-26	DIODE SLV-31MC3-JK	
D204	8-719-028-26	DIODE SLV-31MC3-JK	
D205	8-719-028-26	DIODE SLV-31MC3-JK	
D206	8-719-028-26	DIODE SLV-31MC3-JK	
D209	8-719-946-30	LED SLR34DC3 (II)	
D210	8-719-940-99	LED SLR34VC3 (REC)	
D211	8-719-940-82	LED SLR34MC3 (POWER)	
D213	8-719-812-32	LED TLY123 (VOICE BOOST)	
D214	8-719-946-30	LED SLR34DC3 (EDIT)	
D215	8-719-940-82	LED SLR34MC3 (<A)	
D216	8-719-940-82	LED SLR34MC3 (>A)	
D217	8-719-812-32	LED TLY123 (VTR)	
D218	8-719-946-30	LED SLR34DC3 (SYNCHRO EDIT)	
D219	8-719-812-32	LED TLY123 (<A)	
D220	8-719-812-32	LED TLY123 (>A)	

< SWITCH >

DMS201	1-572-662-21	SWITCH, ROTARY (PLAY/STOP/REVERSE/FORWARD)	
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< IC >

IC201	8-741-100-47	IC SBX1610-09	
IC202	8-759-009-22	IC MC14094BF	

< FLUORESCENT INDICATOR >

ND201	1-809-727-11	DISPLAY PANEL, LIQUID CRYSTAL	
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Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	

Q201	8-729-421-19	TRANSISTOR UN2213	
Q202	8-729-421-19	TRANSISTOR UN2213	
Q203	8-729-421-19	TRANSISTOR UN2213	
Q204	8-729-421-19	TRANSISTOR UN2213	
Q205	8-729-421-19	TRANSISTOR UN2213	

Q206	8-729-421-19	TRANSISTOR UN2213	
Q207	8-729-421-19	TRANSISTOR UN2213	
Q208	8-729-421-19	TRANSISTOR UN2213	

< RESISTOR >

R201	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W
R202	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W
R203	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R204	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R205	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W

R206	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R207	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R208	1-216-033-00	METAL CHIP 220 5%	1/10W
R209	1-216-017-00	METAL CHIP 47 5%	1/10W
R210	1-216-017-00	METAL CHIP 47 5%	1/10W

R211	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W
R212	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R213	1-216-210-00	METAL GLAZE 3.3K 5%	1/8W
R214	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R215	1-216-031-00	METAL CHIP 180 5%	1/10W

R218	1-216-182-00	METAL GLAZE 220 5%	1/8W
R221	1-216-033-00	METAL CHIP 220 5%	1/10W
R222	1-216-033-00	METAL CHIP 220 5%	1/10W
R223	1-216-033-00	METAL CHIP 220 5%	1/10W
R224	1-216-033-00	METAL CHIP 220 5%	1/10W

R225	1-216-033-00	METAL CHIP 220 5%	1/10W
R226	1-216-033-00	METAL CHIP 220 5%	1/10W
R227	1-216-033-00	METAL CHIP 220 5%	1/10W
R228	1-216-033-00	METAL CHIP 220 5%	1/10W
R229	1-216-033-00	METAL CHIP 220 5%	1/10W

R230	1-216-037-00	METAL CHIP 330 5%	1/10W
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< JAMPER RESISTOR >

RJ201	1-216-296-00	METAL CHIP 0 5%	1/8W
RJ202	1-216-296-00	METAL CHIP 0 5%	1/8W
RJ203	1-216-296-00	METAL CHIP 0 5%	1/8W
RJ204	1-216-295-00	METAL CHIP 0 5%	1/10W
RJ205	1-216-296-00	METAL CHIP 0 5%	1/8W

RJ206	1-216-296-00	METAL CHIP 0 5%	1/8W
RJ207	1-216-296-00	METAL CHIP 0 5%	1/8W
RJ208	1-216-296-00	METAL CHIP 0 5%	1/8W
RJ209	1-216-296-00	METAL CHIP 0 5%	1/8W

Ref. No.	Part No.	Description	Remark		
RJ210	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ211	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ212	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ213	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ214	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ215	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ216	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ217	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ218	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ219	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ220	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ221	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ222	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ223	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ224	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ225	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ226	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ227	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ228	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ229	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ230	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ231	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ232	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ233	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ234	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ235	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ236	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ237	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ238	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ239	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ240	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ241	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ242	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ243	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ244	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ245	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ246	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ247	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ248	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ249	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ250	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ251	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ252	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ253	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ254	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ255	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ256	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ257	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ258	1-216-295-00	METAL CHIP	0	5%	1/10W

Ref. No.	Part No.	Description	Remark		
RJ259	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ260	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ261	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ262	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ263	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ264	1-216-296-00	METAL CHIP	0	5%	1/8W
RJ265	1-216-295-00	METAL CHIP	0	5%	1/10W
< SWITCH >					
S201	1-571-977-11	SWITCH, TACTIL (POWER ON/OFF)			
S202	1-571-977-11	SWITCH, TACTIL (EJECT)			
S203	1-571-977-11	SWITCH, TACTIL (PAUSE)			
S204	1-571-977-11	SWITCH, TACTIL (COUNTER RESET)			
S205	1-571-977-11	SWITCH, TACTIL (EDIT)			
S206	1-571-977-11	SWITCH, TACTIL (SLOW/STILL ADJUST)			
S207	1-571-977-11	SWITCH, TACTIL (REC)			
S208	1-571-977-11	SWITCH, TACTIL (SYNCHRO EDIT)			
S209	1-571-977-11	SWITCH, TACTIL (SLOW/STILL ADJUST)			
S210	1-571-977-11	SWITCH, TACTIL (VOICE BOOST)			
*****					
* A-7063-209-A LC-38 BOARD, COMPLETE					
*****					
(Ref. No. 3000 series)					
< CAPACITOR >					
C101	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C107	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C108	1-126-157-11	ELECT	10uF	20%	16V
C109	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C110	1-124-257-00	ELECT	2.2uF	20%	50V
C111	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C112	1-124-635-00	ELECT	220uF	20%	6.3V
C117	1-124-638-11	ELECT	22uF	20%	10V
< CONNECTOR >					
CN101	1-569-933-11	HOUSING, CONNECTOR 16P			
* CN102	1-691-050-21	HOUSING, CONNECTOR 18P			
CN103	1-568-093-11	CONNECTOR (PLUG) 20P			
< DIODE >					
△D101	8-719-400-18	DIODE	MA152WK		
D102	8-719-400-18	DIODE	MA152WK		
△D103	8-719-400-18	DIODE	MA152WK		
D104	8-719-400-18	DIODE	MA152WK		
△D105	8-719-400-18	DIODE	MA152WK		
< IC >					
IC101	8-759-067-95	IC	MB89093		
IC102	8-759-999-02	IC	TL1596CDB		

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
IC104	8-759-067-98	IC PST600CMT	
< TRANSISTOR >			
Q106	8-729-420-20	TRANSISTOR XN4312	
< RESISTOR >			
R101	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R102	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R103	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R105	1-216-049-00	METAL CHIP 1K 5%	1/10W
R109	1-216-073-00	METAL CHIP 10K 5%	1/10W
R110	1-216-073-00	METAL CHIP 10K 5%	1/10W
R111	1-216-073-00	METAL CHIP 10K 5%	1/10W
R112	1-216-073-00	METAL CHIP 10K 5%	1/10W
R113	1-216-073-00	METAL CHIP 10K 5%	1/10W
R114	1-216-073-00	METAL CHIP 10K 5%	1/10W
R115	1-216-073-00	METAL CHIP 10K 5%	1/10W
R116	1-216-073-00	METAL CHIP 10K 5%	1/10W
R117	1-216-073-00	METAL CHIP 10K 5%	1/10W
R118	1-216-073-00	METAL CHIP 10K 5%	1/10W
R119	1-216-073-00	METAL CHIP 10K 5%	1/10W
R120	1-216-073-00	METAL CHIP 10K 5%	1/10W
R121	1-216-295-00	METAL CHIP 0 5%	1/10W
R122	1-216-049-00	METAL CHIP 1K 5%	1/10W
R123	1-216-049-00	METAL CHIP 1K 5%	1/10W
R124	1-216-049-00	METAL CHIP 1K 5%	1/10W
R125	1-216-073-00	METAL CHIP 10K 5%	1/10W
R126	1-216-073-00	METAL CHIP 10K 5%	1/10W
R127	1-216-073-00	METAL CHIP 10K 5%	1/10W
R128	1-216-049-00	METAL CHIP 1K 5%	1/10W
R129	1-216-073-00	METAL CHIP 10K 5%	1/10W
R130	1-216-596-11	METAL GLAZE 2.7K 1%	1/10W
R131	1-216-049-00	METAL CHIP 1K 5%	1/10W
R132	1-216-105-00	METAL CHIP 220K 5%	1/10W
R133	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R135	1-216-295-00	METAL CHIP 0 5%	1/10W
R136	1-216-295-00	METAL CHIP 0 5%	1/10W
R137	1-216-295-00	METAL CHIP 0 5%	1/10W
R138	1-216-073-00	METAL CHIP 10K 5%	1/10W
R139	1-216-073-00	METAL CHIP 10K 5%	1/10W
R140	1-216-113-00	METAL CHIP 470K 5%	1/10W
R141	1-216-049-00	METAL CHIP 1K 5%	1/10W
R145	1-216-049-00	METAL CHIP 1K 5%	1/10W
R147	1-216-073-00	METAL CHIP 10K 5%	1/10W
R148	1-216-295-00	METAL CHIP 0 5%	1/10W
R149	1-216-049-00	METAL CHIP 1K 5%	1/10W
R150	1-216-049-00	METAL CHIP 1K 5%	1/10W
R153	1-216-041-00	METAL CHIP 470 5%	1/10W

Ref. No.	Part No.	Description	Remark
R155	1-216-295-00	METAL CHIP 0 5%	1/10W
< VARIABLE RESISTOR >			
RV101	1-228-994-00	RES, ADJ, METAL 10K	
RV102	1-228-994-00	RES, ADJ, METAL 10K	
< VIBRATOR >			
X101	1-579-175-11	VIBRATOR, CERAMIC (10MHz)	
*****			
A-7063-095-A NJ-4 BOARD, COMPLETE			
*****			
(Ref. No. 1000 series)			
< CAPACITOR >			
C801	1-163-103-00	CERAMIC CHIP 27PF 5%	50V
C802	1-163-103-00	CERAMIC CHIP 27PF 5%	50V
C803	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C804	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C805	1-126-157-11	ELECT 10uF 20%	16V
C806	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C807	1-126-157-11	ELECT 10uF 20%	16V
C808	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C809	1-126-157-11	ELECT 10uF 20%	16V
C810	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C811	1-126-154-11	ELECT 47uF 20%	6.3V
C812	1-126-157-11	ELECT 10uF 20%	16V
C813	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C814	1-126-157-11	ELECT 10uF 20%	16V
C815	1-163-127-00	CERAMIC CHIP 270PF 5%	50V
C816	1-163-127-00	CERAMIC CHIP 270PF 5%	50V
C817	1-126-157-11	ELECT 10uF 20%	16V
C818	1-126-157-11	ELECT 10uF 20%	16V
C819	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C820	1-163-125-00	CERAMIC CHIP 220PF 5%	50V
C821	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C822	1-126-157-11	ELECT 10uF 20%	16V
C823	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C824	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C825	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C826	1-163-031-11	CERAMIC CHIP 0.01uF	50V
< FILTER >			
CF801	1-567-390-11	FILTER, CERAMIC 10.7M	
< CONNECTOR >			
* CN801	1-569-387-11	SOCKET, CONNECTOR (PC BOARD) 10P	

Ref. No.	Part No.	Description	Remark
< IC >			
IC801	8-752-322-24	IC CXL1008M	
IC802	8-759-031-84	IC SC7S04F	
< COIL >			
L801	1-408-970-21	INDUCTOR 10uH	
L802	1-408-970-21	INDUCTOR 10uH	
L803	1-407-169-XX	INDUCTOR 100uH	
L804	1-407-169-XX	INDUCTOR 100uH	
L805	1-408-979-21	INDUCTOR 56uH	
L806	1-408-970-21	INDUCTOR 10uH	
L807	1-408-970-21	INDUCTOR 10uH	
< TRANSISTOR >			
Q801	8-729-421-19	TRANSISTOR UN2213	
Q802	8-729-422-36	TRANSISTOR 2SB709A-Q	
Q803	8-729-422-36	TRANSISTOR 2SB709A-Q	
Q804	8-729-422-36	TRANSISTOR 2SB709A-Q	
Q805	8-729-422-36	TRANSISTOR 2SB709A-Q	
Q806	8-729-422-36	TRANSISTOR 2SB709A-Q	
Q807	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q808	8-729-422-27	TRANSISTOR 2SD601A-Q	
< RESISTOR >			
R801	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R802	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R803	1-216-129-00	METAL CHIP 2. 2M 5% 1/10W	
R804	1-216-129-00	METAL CHIP 2. 2M 5% 1/10W	
R805	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R806	1-216-129-00	METAL CHIP 2. 2M 5% 1/10W	
R807	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R808	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R809	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R810	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R811	1-216-057-00	METAL CHIP 2. 2K 5% 1/10W	
R812	1-216-027-00	METAL CHIP 120 5% 1/10W	
R813	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R814	1-216-065-00	METAL CHIP 4. 7K 5% 1/10W	
R815	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R816	1-216-043-00	METAL CHIP 560 5% 1/10W	
R817	1-216-033-00	METAL CHIP 220 5% 1/10W	
R818	1-216-043-00	METAL CHIP 560 5% 1/10W	
R819	1-216-071-00	METAL CHIP 8. 2K 5% 1/10W	
R820	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R821	1-216-065-00	METAL CHIP 4. 7K 5% 1/10W	
R822	1-216-065-00	METAL CHIP 4. 7K 5% 1/10W	
R824	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R825	1-216-081-00	METAL CHIP 22K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R826	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R827	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R828	1-216-037-00	METAL CHIP 330 5% 1/10W	
R830	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R831	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R832	1-216-049-00	METAL CHIP 1K 5% 1/10W	
< VARIABLE RESISTOR >			
RV801	1-238-088-11	RES, ADJ, CERMET 2. 2K	
*****			
1-413-741-11 POWER BLOCK (US, Canadian)			
*****			
(Ref. No. 6000 series)			
< CAPACITOR >			
△C101	9-900-521-01	FILM 0. 1uF 125V	
△C102	9-900-521-01	FILM 0. 1uF 125V	
△C103	9-900-522-01	CERAMIC 2200PF 125V	
△C104	9-900-522-01	CERAMIC 2200PF 125V	
△C105	9-900-522-01	CERAMIC 2200PF 125V	
C107	9-903-200-01	ELECT 1uF 20% 100V	
C108	9-902-101-01	CERAMIC 100PF 1kV	
C109	9-900-525-01	FILM 0. 047uF 400V	
C110	1-130-491-00	MYLAR 0. 047uF 5% 50V	
C111	1-130-491-00	MYLAR 0. 047uF 5% 50V	
C204	1-124-360-00	ELECT 1000uF 20% 16V	
C205	1-126-101-11	ELECT 100uF 20% 16V	
C206	9-900-540-01	ELECT 2200uF 20% 10V	
C207	1-124-903-11	ELECT 1uF 20% 50V	
C208	1-124-472-11	ELECT 470uF 20% 10V	
C209	1-124-443-00	ELECT 100uF 20% 10V	
C210	1-124-445-11	ELECT 100uF 20% 16V	
C211	1-124-443-00	ELECT 100uF 20% 10V	
< CONNECTOR >			
* CN201	1-564-018-11	PIN, CONNECTOR 8P	
< DIODE >			
△D101	9-900-511-01	DIODE S1WBA60	
D102	9-902-095-01	DIODE ERA15-06	
D103	9-900-512-01	DIODE AG01A	
D104	8-719-200-82	DIODE 11ES2	
D105	8-719-109-63	DIODE RD3. 0ESB2	
D106	9-900-514-01	DIODE MA165	
D203	9-900-535-01	DIODE AU02Z	
D204	9-900-535-01	DIODE AU02Z	
D205	8-719-160-61	DIODE RD15FB2	
D206	9-903-219-01	DIODE RK44	

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# POWER BLOCK

# RJ-35

Ref. No.	Part No.	Description	Remark
D207	9-900-535-01	DIODE AU02Z	
D208	8-719-114-47	DIODE RD7.5JSB	
D209	9-903-220-01	DIODE AK04	
< FUSE >			
△F101	1-532-743-11	FUSE, TIMER-LAG 2A 125V	
< IC >			
△IC201	9-903-221-01	IC PQ05RF14	
IC202	8-759-420-19	IC AN1431T	
IC203	9-903-223-01	IC TA79L005P	
< COIL >			
△L101	9-900-520-01	FILTER, LINE	
L201	9-900-539-01	CHOKE COIL 10uH	
L202	9-900-539-01	CHOKE COIL 10uH	
< IC LINK >			
△PS201	1-532-637-21	IC LINK ICP-N25 1.0A	
< PHOTO COUPLER >			
△PC101	9-902-097-01	PHOTO COUPLER PC817	
< TRANSISTOR >			
△Q101	9-902-096-01	TRANSISTOR 2SC4054	
Q102	9-900-517-01	TRANSISTOR 2SC3377	
< RESISTOR >			
△R101	1-202-729-00	SOLID 6.8M 10% 1/2W	
R102	1-249-441-11	CARBON 100K 5% 1/4W	
R103	1-249-441-11	CARBON 100K 5% 1/4W	
R104	1-249-433-11	CARBON 22K 5% 1/4W	
△R105	9-902-102-01	METAL 47K 3W	
△R106	1-215-864-11	METAL 150 5% 1W	
△R107	1-247-825-11	CARBON 560 5% 1/4W	
R108	1-249-397-11	CARBON 22 5% 1/4W	
R203	9-902-109-01	CARBON 47 1/2W	
R204	1-215-428-00	METAL 2K 1% 1/4W	
R205	1-215-426-00	METAL 1.6K 1% 1/4W	
R207	1-249-429-11	CARBON 10K 5% 1/4W	
△R209	9-902-113-01	FUSE 10 1/4W	
△R210	9-902-115-01	FUSE 1 1/4W	
R212	1-249-429-11	CARBON 10K 5% 1/4W	
R213	1-215-891-11	METAL 680 5% 2W	
< VARIABLE RESISTOR >			
VR201	9-903-244-01	RES, ADJ, CERMET 500	

Ref. No.	Part No.	Description	Remark
*	A-7063-210-A	RJ-35 BOARD, COMPLETE ***** (Ref. No. 5000 series)	
< CAPACITOR >			
C502	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C504	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C506	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C511	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C513	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C514	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
< CONNECTOR >			
CN501	1-568-073-11	CONNECTOR (RECEPTALE) 8P	
CN502	1-568-072-11	CONNECTOR (RECEPTALE) 6P	
< DIODE >			
D501	8-719-106-44	DIODE RD9.1M-B2	
< JACK >			
J501	1-691-981-11	JACK, PIN 4P (VIDEO IN/VIDEO OUT/ AUDIO IN/AUDIO OUT)	
J503	1-507-792-31	JACK (CONTROL S IN)	
J505	1-568-800-11	JACK, ULTRA SMALL (CONTROL L)	
< COIL >			
L501	1-412-390-21	INDUCTOR CHIP 0uH	
< RESISTOR >			
R501	1-216-045-00	METAL CHIP 680 5% 1/10W	
R503	1-216-022-00	METAL CHIP 75 5% 1/10W	
R504	1-216-049-00	METAL CHIP 1K 5% 1/10W	
< SWITCH >			
S502	1-570-157-21	SWITCH, SLIDE (CONTROL L M/S)	
*****			

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Ref. No.	Part No.	Description	Remark
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A-7063-088-A RP-134 BOARD, COMPLETE

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(Ref. No. 1000 series)

1-569-347-11 CONNECTOR, FPC(TRANSLATION)13P

1-643-188-11 FP-502 FLEXIBLE BOARD

1-690-803-11 CABLE, FLAT (FRS-9) 13P

\* 3-947-292-01 CASE (LID), SHIELD, RP

\* 3-947-293-01 CASE (MAIN), SHIELD, RP

< CAPACITOR >

C001	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C002	1-126-157-11	ELECT	10uF	20%	16V
C005	1-126-157-11	ELECT	10uF	20%	16V
C006	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C007	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C008	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C009	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C010	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C011	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C012	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C013	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C014	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C015	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C016	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C018	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C019	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C020	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C021	1-126-157-11	ELECT	10uF	20%	16V
C022	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C025	1-126-157-11	ELECT	10uF	20%	16V
C026	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C027	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C028	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C029	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C030	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C031	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C032	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C033	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C034	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C035	1-127-558-11	ELECT(SOLID)	10uF	20%	10V
C037	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C038	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C039	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C040	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C041	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C042	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C044	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C045	1-126-157-11	ELECT	10uF	20%	16V

Ref. No.	Part No.	Description	Remark
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< CONNECTOR >

CN001 1-566-545-41 CONNECTOR, FPC (NON ZIF) 13P

\* CN002 1-691-072-11 HOUSING, CONNECTOR 13P

CN003 1-506-484-11 PIN, CONNECTOR 5P

< IC >

IC001 8-752-032-35 IC CXA1202Q-Z

IC002 8-759-062-52 IC CXA1443M

< COIL >

L001	1-408-970-21	INDUCTOR	10uH
L002	1-407-169-XX	INDUCTOR	100uH
L003	1-407-169-XX	INDUCTOR	100uH
L004	1-408-970-21	INDUCTOR	10uH
L005	1-408-972-21	INDUCTOR	15uH
L006	1-408-948-00	INDUCTOR	220uH
L007	1-408-970-21	INDUCTOR	10uH
L008	1-407-169-XX	INDUCTOR	100uH

< TRANSISTOR >

Q003	8-729-422-36	TRANSISTOR	2SB709A-Q
Q005	8-729-216-22	TRANSISTOR	2SA1162-Q
Q006	8-729-422-36	TRANSISTOR	2SB709A-Q
Q007	8-729-422-36	TRANSISTOR	2SB709A-Q
Q008	8-729-421-19	TRANSISTOR	UN2213
Q009	8-729-424-18	TRANSISTOR	UN2113

< RESISTOR >

R004	1-216-295-00	METAL CHIP	0	5%	1/10W
R005	1-216-081-00	METAL CHIP	22K	5%	1/10W
R006	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R008	1-216-081-00	METAL CHIP	22K	5%	1/10W
R009	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R010	1-216-081-00	METAL CHIP	22K	5%	1/10W
R011	1-216-085-00	METAL CHIP	33K	5%	1/10W
R012	1-216-077-00	METAL CHIP	15K	5%	1/10W
R013	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R014	1-216-081-00	METAL CHIP	22K	5%	1/10W
R015	1-216-085-00	METAL CHIP	33K	5%	1/10W
R016	1-216-075-00	METAL CHIP	12K	5%	1/10W
R017	1-216-081-00	METAL CHIP	22K	5%	1/10W
R018	1-216-081-00	METAL CHIP	22K	5%	1/10W
R019	1-216-073-00	METAL CHIP	10K	5%	1/10W
R021	1-216-073-00	METAL CHIP	10K	5%	1/10W
R022	1-216-073-00	METAL CHIP	10K	5%	1/10W
R023	1-216-295-00	METAL CHIP	0	5%	1/10W
R026	1-216-295-00	METAL CHIP	0	5%	1/10W
R027	1-216-069-00	METAL CHIP	6.8K	5%	1/10W



Ref. No.	Part No.	Description	Remark		
R028	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R029	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R030	1-216-049-00	METAL CHIP	1K	5%	1/10W
R032	1-216-029-00	METAL CHIP	150	5%	1/10W
R033	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R034	1-216-295-00	METAL CHIP	0	5%	1/10W
R036	1-216-049-00	METAL CHIP	1K	5%	1/10W
R037	1-216-025-00	METAL CHIP	100	5%	1/10W
R039	1-216-025-00	METAL CHIP	100	5%	1/10W
R040	1-216-041-00	METAL CHIP	470	5%	1/10W
R041	1-216-013-00	METAL CHIP	33	5%	1/10W
R042	1-216-005-00	METAL CHIP	15	5%	1/10W
R043	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R044	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R045	1-216-035-00	METAL CHIP	270	5%	1/10W
R046	1-216-033-00	METAL CHIP	220	5%	1/10W
R047	1-216-081-00	METAL CHIP	22K	5%	1/10W
R048	1-216-085-00	METAL CHIP	33K	5%	1/10W
R050	1-216-025-00	METAL CHIP	100	5%	1/10W
R052	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R053	1-216-295-00	METAL CHIP	0	5%	1/10W
< VARIABLE RESISTOR >					
RV001	1-241-123-11	RES, ADJ, CARBON 47K			
RV002	1-241-123-11	RES, ADJ, CARBON 47K			
RV003	1-230-721-11	RES, ADJ, CARBON 10K			
*****					
*	A-7063-207-A	SS-144 BOARD, COMPLETE			
*****					
(Ref. No. 2000 series)					
1-690-801-11 CABLE, FLAT (FSV-1) 24P					
1-696-042-11 CABLE, FLAT (FSV-4)					
*	3-947-505-01	CASE, SHIELD, PWM			
< CAPACITOR >					
C006	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C007	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C008	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C009	1-126-157-11	ELECT	10uF	20%	16V
C010	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C012	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C013	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C015	1-163-087-00	CERAMIC CHIP	4PF		50V
C016	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C017	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C019	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C020	1-126-157-11	ELECT	10uF	20%	16V
C021	1-163-038-00	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description	Remark		
C022	1-126-157-11	ELECT	10uF	20%	16V
C023	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C024	1-126-157-11	ELECT	10uF	20%	16V
C025	1-126-157-11	ELECT	10uF	20%	16V
C026	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C029	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C030	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C031	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C032	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C033	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C034	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C035	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C036	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C037	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C038	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C039	1-126-157-11	ELECT	10uF	20%	16V
C040	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C041	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C042	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C043	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C045	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C046	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C101	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C102	1-162-638-11	CERAMIC CHIP	1uF		16V
C103	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C104	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C105	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C106	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C107	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C108	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C109	1-130-495-00	MYLAR	0.1uF	5%	50V
C110	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C111	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C112	1-126-163-11	ELECT	4.7uF	20%	50V
C113	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C114	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C115	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C116	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C117	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C118	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C120	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C121	1-126-301-11	ELECT	1uF	20%	50V
C122	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C125	1-124-589-11	ELECT	47uF	20%	16V
C126	1-127-498-00	ELECT(SOLID)	15uF	20%	16V
C127	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C128	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V

Ref. No.	Part No.	Description	Remark
C129	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C130	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C131	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C132	1-127-558-11	ELECT(SOLID) 10uF	20% 10V
C133	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C134	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C135	1-127-558-11	ELECT(SOLID) 10uF	20% 10V
C136	1-126-157-11	ELECT 10uF	20% 16V
C137	1-126-157-11	ELECT 10uF	20% 16V
C140	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C144	1-164-489-11	CERAMIC CHIP 0.22uF	10% 16V
C145	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C146	1-163-989-11	CERAMIC CHIP 0.033uF	10% 25V
C147	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C148	1-164-489-11	CERAMIC CHIP 0.22uF	10% 16V
C149	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C151	1-163-011-11	CERAMIC CHIP 0.0015uF	10% 50V
C152	1-163-239-11	CERAMIC CHIP 33PF	5% 50V

## &lt; CONNECTOR &gt;

* CN001	1-691-083-11	HOUSING, CONNECTOR 24P
* CN002	1-691-072-11	HOUSING, CONNECTOR 13P
* CN004	1-691-072-11	HOUSING, CONNECTOR 13P
CN005	1-566-546-11	CONNECTOR, FPC (NON ZIF) 14P
CN101	1-566-531-11	CONNECTOR, FPC (ZIF) 15P
CN102	1-566-542-31	CONNECTOR, FPC (NON ZIF) 10P
* CN103	1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P
* CN104	1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P

## &lt; DIODE &gt;

△DO02	8-719-200-27	DIODE E10DS2
△DO03	8-719-200-27	DIODE E10DS2
DO04	8-719-104-34	DIODE 1S2836
D102	8-719-938-75	DIODE SB05-05CP
D103	8-719-938-75	DIODE SB05-05CP
D106	8-719-104-34	DIODE 1S2836

## &lt; FERRITE BEAD &gt;

FB002	1-412-390-21	INDUCTOR CHIP 0uH
FB003	1-412-390-21	INDUCTOR CHIP 0uH
FB102	1-412-390-21	INDUCTOR CHIP 0uH
FB103	1-412-390-21	INDUCTOR CHIP 0uH
FB104	1-412-390-21	INDUCTOR CHIP 0uH

## &lt; IC &gt;

IC002	8-752-838-03	IC CXP80624-412Q
IC003	8-759-070-96	IC CXA1481AQ
IC005	8-759-945-17	IC MB3775PF
IC101	8-759-823-65	IC MCD002AM

Ref. No.	Part No.	Description	Remark
IC102	8-759-990-55	IC CXA8006M	
IC103	8-759-148-05	IC CXA8010M	
IC104	8-759-823-94	IC LB1836M	

## &lt; COIL &gt;

△L002	1-408-978-21	INDUCTOR 47uH
L004	1-407-169-XX	INDUCTOR 100uH
L007	1-408-970-21	INDUCTOR 10uH
L008	1-424-522-21	COIL, CHOKE 10uH
L009	1-424-524-21	COIL, CHOKE 47uH
L010	1-424-524-21	COIL, CHOKE 47uH
L101	1-412-010-41	INDUCTOR CHIP 22uH

## &lt; IC LINK &gt;

△PS101	1-532-605-00	LINK, IC 0.4A (ICP-N10)
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## &lt; TRANSISTOR &gt;

Q001	8-729-901-01	TRANSISTOR DTC144EK
Q003	8-729-100-66	TRANSISTOR 2SC1623-L6
Q007	8-729-901-01	TRANSISTOR DTC144EK
Q102	8-729-901-06	TRANSISTOR DTA144EK
Q104	8-729-424-77	TRANSISTOR UN2210
Q105	8-729-424-77	TRANSISTOR UN2210
Q106	8-729-420-12	TRANSISTOR XN4213
Q108	8-729-100-66	TRANSISTOR 2SC1623-L6
△Q109	8-729-805-25	TRANSISTOR 2SB1121
Q110	8-729-100-66	TRANSISTOR 2SC1623-L6
△Q111	8-729-805-25	TRANSISTOR 2SB1121
Q112	8-729-422-36	TRANSISTOR 2SB709A-Q
Q113	8-729-100-66	TRANSISTOR 2SC1623-L6
Q114	8-729-402-81	TRANSISTOR XN4501
Q115	8-729-901-04	TRANSISTOR DTA114EK

## &lt; RESISTOR &gt;

RO01	1-216-073-00	METAL CHIP 10K 5% 1/10W
RO02	1-216-073-00	METAL CHIP 10K 5% 1/10W
RO03	1-216-073-00	METAL CHIP 10K 5% 1/10W
RO04	1-216-073-00	METAL CHIP 10K 5% 1/10W
RO07	1-216-049-00	METAL CHIP 1K 5% 1/10W
RO08	1-216-049-00	METAL CHIP 1K 5% 1/10W
RO09	1-216-049-00	METAL CHIP 1K 5% 1/10W
RO11	1-216-073-00	METAL CHIP 10K 5% 1/10W
RO12	1-216-073-00	METAL CHIP 10K 5% 1/10W
RO13	1-216-073-00	METAL CHIP 10K 5% 1/10W
RO14	1-216-073-00	METAL CHIP 10K 5% 1/10W
RO15	1-216-073-00	METAL CHIP 10K 5% 1/10W
RO16	1-216-073-00	METAL CHIP 10K 5% 1/10W
RO20	1-216-073-00	METAL CHIP 10K 5% 1/10W
RO23	1-216-073-00	METAL CHIP 10K 5% 1/10W

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark		
R024	1-216-073-00	METAL CHIP	10K	5%	1/10W
R025	1-216-073-00	METAL CHIP	10K	5%	1/10W
R026	1-216-073-00	METAL CHIP	10K	5%	1/10W
R027	1-216-295-00	METAL CHIP	0	5%	1/10W
R030	1-216-089-00	METAL CHIP	47K	5%	1/10W
R032	1-216-295-00	METAL CHIP	0	5%	1/10W
R033	1-216-049-00	METAL CHIP	1K	5%	1/10W
R034	1-216-097-00	METAL CHIP	100K	5%	1/10W
R035	1-216-097-00	METAL CHIP	100K	5%	1/10W
R036	1-216-097-00	METAL CHIP	100K	5%	1/10W
R037	1-216-049-00	METAL CHIP	1K	5%	1/10W
R039	1-216-049-00	METAL CHIP	1K	5%	1/10W
R040	1-216-073-00	METAL CHIP	10K	5%	1/10W
R041	1-216-073-00	METAL CHIP	10K	5%	1/10W
R044	1-216-089-00	METAL CHIP	47K	5%	1/10W
R046	1-216-049-00	METAL CHIP	1K	5%	1/10W
R049	1-216-295-00	METAL CHIP	0	5%	1/10W
R052	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R053	1-216-049-00	METAL CHIP	1K	5%	1/10W
R055	1-216-049-00	METAL CHIP	1K	5%	1/10W
R056	1-216-049-00	METAL CHIP	1K	5%	1/10W
R057	1-216-049-00	METAL CHIP	1K	5%	1/10W
R058	1-216-049-00	METAL CHIP	1K	5%	1/10W
R059	1-216-049-00	METAL CHIP	1K	5%	1/10W
R061	1-216-089-00	METAL CHIP	47K	5%	1/10W
R062	1-216-089-00	METAL CHIP	47K	5%	1/10W
R063	1-216-089-00	METAL CHIP	47K	5%	1/10W
R064	1-216-089-00	METAL CHIP	47K	5%	1/10W
R065	1-216-089-00	METAL CHIP	47K	5%	1/10W
R067	1-216-089-00	METAL CHIP	47K	5%	1/10W
R069	1-216-073-00	METAL CHIP	10K	5%	1/10W
R070	1-216-073-00	METAL CHIP	10K	5%	1/10W
R071	1-216-073-00	METAL CHIP	10K	5%	1/10W
R072	1-216-073-00	METAL CHIP	10K	5%	1/10W
R073	1-216-073-00	METAL CHIP	10K	5%	1/10W
R075	1-216-073-00	METAL CHIP	10K	5%	1/10W
R077	1-216-049-00	METAL CHIP	1K	5%	1/10W
R079	1-216-049-00	METAL CHIP	1K	5%	1/10W
R080	1-216-049-00	METAL CHIP	1K	5%	1/10W
R081	1-216-049-00	METAL CHIP	1K	5%	1/10W
R082	1-216-049-00	METAL CHIP	1K	5%	1/10W
R083	1-216-049-00	METAL CHIP	1K	5%	1/10W
R084	1-216-049-00	METAL CHIP	1K	5%	1/10W
R085	1-216-049-00	METAL CHIP	1K	5%	1/10W
R086	1-216-049-00	METAL CHIP	1K	5%	1/10W
R087	1-216-049-00	METAL CHIP	1K	5%	1/10W
R088	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R089	1-216-049-00	METAL CHIP	1K	5%	1/10W
R090	1-216-049-00	METAL CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R091	1-216-049-00	METAL CHIP	1K	5%	1/10W
R092	1-216-049-00	METAL CHIP	1K	5%	1/10W
R093	1-216-049-00	METAL CHIP	1K	5%	1/10W
R094	1-216-049-00	METAL CHIP	1K	5%	1/10W
R095	1-216-295-00	METAL CHIP	0	5%	1/10W
R096	1-216-073-00	METAL CHIP	10K	5%	1/10W
R097	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R098	1-216-049-00	METAL CHIP	1K	5%	1/10W
R099	1-216-049-00	METAL CHIP	1K	5%	1/10W
R101	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W
R105	1-216-073-00	METAL CHIP	10K	5%	1/10W
R106	1-216-097-00	METAL CHIP	100K	5%	1/10W
R107	1-216-089-00	METAL CHIP	47K	5%	1/10W
R108	1-216-089-00	METAL CHIP	47K	5%	1/10W
R109	1-216-097-00	METAL CHIP	100K	5%	1/10W
R110	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R112	1-216-089-00	METAL CHIP	47K	5%	1/10W
R113	1-216-037-00	METAL CHIP	330	5%	1/10W
R114	1-216-295-00	METAL CHIP	0	5%	1/10W
R116	1-217-671-11	METAL CHIP	1	5%	1/10W
R117	1-217-671-11	METAL CHIP	1	5%	1/10W
R118	1-217-671-11	METAL CHIP	1	5%	1/10W
R119	1-217-671-11	METAL CHIP	1	5%	1/10W
R120	1-216-083-00	METAL CHIP	27K	5%	1/10W
R121	1-216-083-00	METAL CHIP	27K	5%	1/10W
R122	1-216-295-00	METAL CHIP	0	5%	1/10W
R123	1-216-083-00	METAL CHIP	27K	5%	1/10W
R124	1-216-073-00	METAL CHIP	10K	5%	1/10W
R130	1-216-121-00	METAL CHIP	1M	5%	1/10W
R131	1-216-121-00	METAL CHIP	1M	5%	1/10W
R134	1-216-089-00	METAL CHIP	47K	5%	1/10W
R135	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R137	1-216-083-00	METAL CHIP	27K	5%	1/10W
R138	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R140	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R141	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R142	1-216-033-00	METAL CHIP	220	5%	1/10W
R143	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R144	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R145	1-216-079-00	METAL CHIP	18K	5%	1/10W
R146	1-216-045-00	METAL CHIP	680	5%	1/10W
R147	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R148	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R149	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R150	1-216-079-00	METAL CHIP	18K	5%	1/10W
R151	1-216-045-00	METAL CHIP	680	5%	1/10W
R152	1-216-067-00	METAL CHIP	5.6K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R153	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R159	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R161	1-216-295-00	METAL CHIP	0	5%	1/10W
R163	1-216-295-00	METAL CHIP	0	5%	1/10W
R165	1-216-192-00	METAL CHIP	560	5%	1/8W
R166	1-216-089-00	METAL CHIP	47K	5%	1/10W
R169	1-216-097-00	METAL CHIP	100K	5%	1/10W
R170	1-216-295-00	METAL CHIP	0	5%	1/10W
R171	1-216-295-00	METAL CHIP	0	5%	1/10W
R172	1-216-295-00	METAL CHIP	0	5%	1/10W
R177	1-216-295-00	METAL CHIP	0	5%	1/10W
R179	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R180	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R193	1-216-073-00	METAL CHIP	10K	5%	1/10W
R194	1-216-073-00	METAL CHIP	10K	5%	1/10W
R195	1-216-073-00	METAL CHIP	10K	5%	1/10W
R196	1-216-073-00	METAL CHIP	10K	5%	1/10W
R197	1-216-089-00	METAL CHIP	47K	5%	1/10W
R198	1-216-089-00	METAL CHIP	47K	5%	1/10W
R200	1-216-295-00	METAL CHIP	0	5%	1/10W
R202	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R203	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R205	1-216-089-00	METAL CHIP	47K	5%	1/10W
R209	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R210	1-216-089-00	METAL CHIP	47K	5%	1/10W
R211	1-216-295-00	METAL CHIP	0	5%	1/10W
R212	1-216-081-00	METAL CHIP	22K	5%	1/10W
R213	1-216-097-00	METAL CHIP	100K	5%	1/10W
R214	1-216-073-00	METAL CHIP	10K	5%	1/10W
R217	1-216-041-00	METAL CHIP	470	5%	1/10W
R218	1-216-041-00	METAL CHIP	470	5%	1/10W
R219	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R220	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R221	1-216-295-00	METAL CHIP	0	5%	1/10W
R226	1-216-295-00	METAL CHIP	0	5%	1/10W
R229	1-216-295-00	METAL CHIP	0	5%	1/10W
R230	1-216-099-00	METAL CHIP	120K	5%	1/10W
R231	1-216-099-00	METAL CHIP	120K	5%	1/10W
R232	1-216-172-00	METAL CHIP	82	5%	1/8W
R233	1-216-095-00	METAL CHIP	82K	5%	1/10W
R234	1-216-109-00	METAL CHIP	330K	5%	1/10W
R236	1-216-295-00	METAL CHIP	0	5%	1/10W
R237	1-216-295-00	METAL CHIP	0	5%	1/10W
R238	1-216-295-00	METAL CHIP	0	5%	1/10W
R239	1-216-295-00	METAL CHIP	0	5%	1/10W
R240	1-216-089-00	METAL CHIP	47K	5%	1/10W
R241	1-216-097-00	METAL CHIP	100K	5%	1/10W
R242	1-216-073-00	METAL CHIP	10K	5%	1/10W
R243	1-216-049-00	METAL CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R244	1-216-121-00	METAL CHIP	1M	5%	1/10W
R245	1-216-048-00	METAL CHIP	910	5%	1/10W
R246	1-216-105-00	METAL CHIP	220K	5%	1/10W
R247	1-216-039-00	METAL CHIP	390	5%	1/10W
R249	1-216-073-00	METAL CHIP	10K	5%	1/10W
R250	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R251	1-216-089-00	METAL CHIP	47K	5%	1/10W
R252	1-216-295-00	METAL CHIP	0	5%	1/10W
R253	1-216-074-00	METAL CHIP	11K	5%	1/10W
R255	1-216-045-00	METAL CHIP	680	5%	1/10W
R256	1-216-073-00	METAL CHIP	10K	5%	1/10W
R257	1-216-105-00	METAL CHIP	220K	5%	1/10W
R258	1-216-097-00	METAL CHIP	100K	5%	1/10W
R259	1-216-089-00	METAL CHIP	47K	5%	1/10W

## &lt; VARIABLE RESISTOR &gt;

RV102 1-238-089-11 RES, ADJ, CERMET 4.7K

## &lt; VIBRATOR &gt;

X002 1-579-367-21 VABRATOR, CRYSTAL (11.89MHz)

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\* A-7063-182-A UC-13 BOARD, COMPLETE

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(Ref. No. 2000 series)

1-690-804-11 CABLE, FLAT (FUS-2) 14P

## &lt; CONNECTOR &gt;

CN801 1-566-529-11 CONNECTOR, FPC (ZIF) 13P

CN802 1-566-527-11 CONNECTOR, FPC (ZIF) 11P

CN803 1-566-530-11 CONNECTOR, FPC (ZIF) 14P

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A-7063-211-A VI-111 BOARD, COMPLETE

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(Ref. No. 1000 series)

\* 3-947-274-11 FRAME, REAR

3-948-500-01 SCREW, BV (3X10) RING

## &lt; CAPACITOR &gt;

C101 1-126-157-11 ELECT 10uF 20% 16V

C102 1-163-031-11 CERAMIC CHIP 0.01uF 50V

C103 1-163-031-11 CERAMIC CHIP 0.01uF 50V

C104 1-163-031-11 CERAMIC CHIP 0.01uF 50V

C105 1-163-011-11 CERAMIC CHIP 0.0015uF 10% 50V

C106 1-163-127-00 CERAMIC CHIP 270PF 5% 50V

C115 1-163-031-11 CERAMIC CHIP 0.01uF 50V

C116 1-163-031-11 CERAMIC CHIP 0.01uF 50V

C118 1-163-031-11 CERAMIC CHIP 0.01uF 50V

Ref. No.	Part No.	Description	Remark	
C119	1-163-031-11	CERAMIC CHIP 0.01uF	50V	
C120	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C121	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C124	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C125	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C128	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C130	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C131	1-124-638-11	ELECT 22uF	20%	10V
C132	1-163-099-00	CERAMIC CHIP 18PF	5%	50V
C133	1-124-638-11	ELECT 22uF	20%	10V
C134	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C135	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C136	1-126-157-11	ELECT 10uF	20%	16V
C142	1-163-257-11	CERAMIC CHIP 180PF	5%	50V
C149	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C152	1-163-119-00	CERAMIC CHIP 120PF	5%	50V
C153	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C154	1-164-005-11	CERAMIC CHIP 0.47uF		25V
C155	1-126-157-11	ELECT 10uF	20%	16V
C156	1-126-157-11	ELECT 10uF	20%	16V
C157	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C158	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C159	1-126-157-11	ELECT 10uF	20%	16V
C160	1-126-162-11	ELECT 3.3uF	20%	50V
C161	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C162	1-126-157-11	ELECT 10uF	20%	16V
C163	1-126-162-11	ELECT 3.3uF	20%	50V
C165	1-126-157-11	ELECT 10uF	20%	16V
C166	1-126-157-11	ELECT 10uF	20%	16V
C167	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C168	1-164-004-11	CERAMIC CHIP 0.1uF	10%	25V
C169	1-164-005-11	CERAMIC CHIP 0.47uF		25V
C171	1-164-222-11	CERAMIC CHIP 0.22uF		25V
C172	1-126-157-11	ELECT 10uF	20%	16V
C173	1-126-163-11	ELECT 4.7uF	20%	50V
C174	1-126-157-11	ELECT 10uF	20%	16V
C175	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C176	1-126-157-11	ELECT 10uF	20%	16V
C177	1-164-182-11	CERAMIC CHIP 0.0033uF	10%	50V
C178	1-163-023-00	CERAMIC CHIP 0.015uF	5%	50V
C179	1-124-638-11	ELECT 22uF	20%	10V
C180	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C181	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C182	1-126-154-11	ELECT 47uF	20%	6.3V
C185	1-124-638-11	ELECT 22uF	20%	10V
C186	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C187	1-126-157-11	ELECT 10uF	20%	16V
C188	1-126-157-11	ELECT 10uF	20%	16V
C189	1-163-031-11	CERAMIC CHIP 0.01uF		50V

Ref. No.	Part No.	Description	Remark	
C190	1-163-263-11	CERAMIC CHIP 330PF	5%	50V
C191	1-163-131-00	CERAMIC CHIP 390PF	5%	50V
C193	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C194	1-126-157-11	ELECT 10uF	20%	16V
C195	1-163-241-11	CERAMIC CHIP 39PF	5%	50V
C196	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C197	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C198	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C199	1-163-241-11	CERAMIC CHIP 39PF	5%	50V
C200	1-124-638-11	ELECT 22uF	20%	10V
C203	1-126-157-11	ELECT 10uF	20%	16V
C204	1-126-157-11	ELECT 10uF	20%	16V
C205	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C206	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C207	1-163-038-00	CERAMIC CHIP 0.1uF		25V
C208	1-163-038-00	CERAMIC CHIP 0.1uF		25V
C209	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C210	1-126-157-11	ELECT 10uF	20%	16V
C211	1-126-157-11	ELECT 10uF	20%	16V
C212	1-126-301-11	ELECT 1uF	20%	50V
C213	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C214	1-126-157-11	ELECT 10uF	20%	16V
C216	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C217	1-163-251-11	CERAMIC CHIP 100PF	5%	50V
C218	1-126-157-11	ELECT 10uF	20%	16V
C219	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C220	1-126-157-11	ELECT 10uF	20%	16V
C221	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C222	1-126-154-11	ELECT 47uF	20%	6.3V
C223	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C224	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C225	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C226	1-126-301-11	ELECT 1uF	20%	50V
C227	1-126-301-11	ELECT 1uF	20%	50V
C228	1-126-301-11	ELECT 1uF	20%	50V
C229	1-126-157-11	ELECT 10uF	20%	16V
C230	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C231	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C232	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C234	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C235	1-163-239-11	CERAMIC CHIP 33PF	5%	50V
C236	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C237	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C238	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C239	1-164-182-11	CERAMIC CHIP 0.0033uF	10%	50V
C240	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C241	1-163-031-11	CERAMIC CHIP 0.01uF		50V
C242	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C243	1-163-117-00	CERAMIC CHIP 100PF	5%	50V

Ref. No.	Part No.	Description	Remark
C244	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C245	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C246	1-163-119-00	CERAMIC CHIP 120PF	5% 50V
C247	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C248	1-163-111-00	CERAMIC CHIP 56PF	5% 50V
C249	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C250	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C251	1-163-121-00	CERAMIC CHIP 150PF	5% 50V
C252	1-163-131-00	CERAMIC CHIP 390PF	5% 50V
C253	1-163-239-11	CERAMIC CHIP 33PF	5% 50V
C255	1-163-116-00	CERAMIC CHIP 91PF	5% 50V
C256	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C501	1-126-157-11	ELECT 10uF	20% 16V
C504	1-126-157-11	ELECT 10uF	20% 16V
C505	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C627	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C628	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C629	1-126-157-11	ELECT 10uF	20% 16V
C630	1-126-157-11	ELECT 10uF	20% 16V
C640	1-124-638-11	ELECT 22uF	20% 10V
C701	1-126-177-11	ELECT 100uF	20% 10V
C702	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C704	1-126-163-11	ELECT 4.7uF	20% 50V
C705	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C706	1-126-163-11	ELECT 4.7uF	20% 50V
C707	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C708	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C709	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C713	1-126-157-11	ELECT 10uF	20% 16V
C714	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C715	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C720	1-126-157-11	ELECT 10uF	20% 16V
< FILTER >			
CF101	1-567-727-11	FILTER, CERAMIC	
< CONNECTOR >			
* CN501	1-691-083-11	HOUSING, CONNECTOR 24P	
* CN502	1-691-072-11	HOUSING, CONNECTOR 13P	
CN504	1-568-079-11	CONNECTOR (RECEPTALE) 20P	
* CN506	1-569-395-11	PIN, CONNECTOR (PC BOARD) 10P	
* CN508	1-564-678-11	PIN, CONNECTOR 6P	
CN509	1-564-680-11	PIN, CONNECTOR 10P	
CN511	1-568-087-11	CONNECTOR (PLUG) 8P	
CN512	1-568-086-11	CONNECTOR (PLUG) 6P	
CN513	1-506-470-11	PIN, CONNECTOR 5P	

Ref. No.	Part No.	Description	Remark
< DIODE >			
D101	8-719-800-76	DIODE 1SS226	
D102	8-719-400-18	DIODE MA152WK	
△D501	8-719-975-41	DIODE RB411D	
D502	8-719-105-91	DIODE RD5.6M-B2	
D505	8-719-104-34	DIODE 1S2836	
< FILTER >			
FL103	1-236-757-21	FILTER, LOW PASS (C)	
FL104	1-236-575-11	B. P. F (PAL-M)	
FL105	1-236-146-11	FILTER, BAND PASS	
< IC >			
IC101	8-752-054-87	IC CXA1207AQ	
IC102	8-752-332-68	IC CXL5502M	
IC103	8-752-039-34	IC CXA1208Q	
IC701	8-759-100-96	IC uPC4558G2	
< COIL >			
L101	1-408-978-21	INDUCTOR 47uH	
L102	1-410-072-21	INDUCTOR 820uH	
L103	1-408-985-21	INDUCTOR 180uH	
L107	1-407-169-XX	INDUCTOR 100uH	
L109	1-408-975-21	INDUCTOR 27uH	
L110	1-408-970-21	INDUCTOR 10uH	
L111	1-408-972-21	INDUCTOR 15uH	
L113	1-407-169-XX	INDUCTOR 100uH	
L114	1-408-978-21	INDUCTOR 47uH	
L116	1-408-983-21	INDUCTOR 120uH	
L117	1-408-987-21	INDUCTOR 330uH	
L119	1-408-970-21	INDUCTOR 10uH	
L120	1-408-978-21	INDUCTOR 47uH	
L121	1-408-978-21	INDUCTOR 47uH	
L122	1-408-979-21	INDUCTOR 56uH	
L123	1-408-979-21	INDUCTOR 56uH	
L124	1-408-978-21	INDUCTOR 47uH	
L125	1-408-978-21	INDUCTOR 47uH	
L126	1-410-988-11	INDUCTOR CHIP 0.39uH	
L127	1-410-988-11	INDUCTOR CHIP 0.39uH	
L128	1-410-988-11	INDUCTOR CHIP 0.39uH	
L129	1-410-988-11	INDUCTOR CHIP 0.39uH	
L130	1-410-988-11	INDUCTOR CHIP 0.39uH	
L131	1-410-988-11	INDUCTOR CHIP 0.39uH	
L133	1-408-978-21	INDUCTOR 47uH	
L134	1-408-974-21	INDUCTOR 22uH	
L135	1-408-974-21	INDUCTOR 22uH	
L136	1-407-169-XX	INDUCTOR 100uH	
L137	1-408-966-21	INDUCTOR 4.7uH	
L138	1-407-169-XX	INDUCTOR 100uH	

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Ref. No.	Part No.	Description	Remark
L139	1-408-984-21	INDUCTOR	150uH
L140	1-407-169-XX	INDUCTOR	100uH
L141	1-408-983-21	INDUCTOR	120uH
L142	1-408-974-21	INDUCTOR	22uH
L143	1-408-987-21	INDUCTOR	330uH
L144	1-408-974-21	INDUCTOR	22uH
L501	1-408-978-21	INDUCTOR	47uH
L604	1-408-978-21	INDUCTOR	47uH
L605	1-408-978-21	INDUCTOR	47uH

## &lt; TRANSISTOR &gt;

Q101	8-729-101-07	TRANSISTOR	2SB798-DL
Q102	8-729-421-19	TRANSISTOR	UN2213
Q104	8-729-422-27	TRANSISTOR	2SD601A-Q
Q105	8-729-422-27	TRANSISTOR	2SD601A-Q
Q112	8-729-102-07	TRANSISTOR	2SC2223-F13
Q114	8-729-422-27	TRANSISTOR	2SD601A-Q
Q116	8-729-424-18	TRANSISTOR	UN2113
Q118	8-729-422-27	TRANSISTOR	2SD601A-Q
Q119	8-729-422-27	TRANSISTOR	2SD601A-Q
Q120	8-729-403-02	TRANSISTOR	XN4212
Q121	8-729-402-84	TRANSISTOR	XN4601
Q123	8-729-422-27	TRANSISTOR	2SD601A-Q
Q126	8-729-422-27	TRANSISTOR	2SD601A-Q
Q127	8-729-422-27	TRANSISTOR	2SD601A-Q
Q128	8-729-422-27	TRANSISTOR	2SD601A-Q
Q129	8-729-403-24	TRANSISTOR	XN4210
Q130	8-729-422-36	TRANSISTOR	2SB709A-Q
Q132	8-729-421-19	TRANSISTOR	UN2213
Q133	8-729-424-08	TRANSISTOR	UN2111
Q134	8-729-420-20	TRANSISTOR	XN4312
Q135	8-729-421-19	TRANSISTOR	UN2213
Q140	8-729-422-27	TRANSISTOR	2SD601A-Q
Q141	8-729-403-02	TRANSISTOR	XN4212
Q142	8-729-422-27	TRANSISTOR	2SD601A-Q
Q143	8-729-422-27	TRANSISTOR	2SD601A-Q
Q144	8-729-402-81	TRANSISTOR	XN4501
Q145	8-729-422-36	TRANSISTOR	2SB709A-Q
Q147	8-729-422-36	TRANSISTOR	2SB709A-Q
Q148	8-729-422-27	TRANSISTOR	2SD601A-Q
Q149	8-729-422-27	TRANSISTOR	2SD601A-Q
Q150	8-729-422-27	TRANSISTOR	2SD601A-Q
Q151	8-729-420-12	TRANSISTOR	XN4213
Q152	8-729-422-27	TRANSISTOR	2SD601A-Q
Q156	8-729-421-19	TRANSISTOR	UN2213
Q157	8-729-422-36	TRANSISTOR	2SB709A-Q
Q158	8-729-422-27	TRANSISTOR	2SD601A-Q
Q159	8-729-424-08	TRANSISTOR	UN2111
△Q504	8-729-101-07	TRANSISTOR	2SB798-DL

Ref. No.	Part No.	Description	Remark
Q505	8-729-422-27	TRANSISTOR	2SD601A-Q
Q609	8-729-402-84	TRANSISTOR	XN4601
Q610	8-729-402-84	TRANSISTOR	XN4601
Q611	8-729-422-27	TRANSISTOR	2SD601A-Q
Q701	8-729-402-81	TRANSISTOR	XN4501
Q703	8-729-421-90	TRANSISTOR	XN4113
Q704	8-729-902-XX	TRANSISTOR	UN2215
Q705	8-729-422-54	TRANSISTOR	XN4215

## &lt; RESISTOR &gt;

R101	1-216-073-00	METAL CHIP	10K	5%	1/10W
R102	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R104	1-216-295-00	METAL CHIP	0	5%	1/10W
R105	1-216-081-00	METAL CHIP	22K	5%	1/10W
R106	1-216-081-00	METAL CHIP	22K	5%	1/10W
R107	1-216-049-00	METAL CHIP	1K	5%	1/10W
R108	1-216-049-00	METAL CHIP	1K	5%	1/10W
R109	1-216-029-00	METAL CHIP	150	5%	1/10W
R110	1-216-089-00	METAL CHIP	6.8K	5%	1/10W
R111	1-216-077-00	METAL CHIP	15K	5%	1/10W
R112	1-216-049-00	METAL CHIP	1K	5%	1/10W
R113	1-216-043-00	METAL CHIP	560	5%	1/10W
R114	1-216-035-00	METAL CHIP	270	5%	1/10W
R115	1-216-295-00	METAL CHIP	0	5%	1/10W
R126	1-216-081-00	METAL CHIP	22K	5%	1/10W
R127	1-216-081-00	METAL CHIP	22K	5%	1/10W
R128	1-216-033-00	METAL CHIP	220	5%	1/10W
R129	1-216-021-00	METAL CHIP	68	5%	1/10W
R130	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R131	1-216-043-00	METAL CHIP	560	5%	1/10W
R132	1-216-045-00	METAL CHIP	680	5%	1/10W
R134	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R135	1-216-295-00	METAL CHIP	0	5%	1/10W
R136	1-216-081-00	METAL CHIP	22K	5%	1/10W
R137	1-216-081-00	METAL CHIP	22K	5%	1/10W
R138	1-216-049-00	METAL CHIP	1K	5%	1/10W
R139	1-216-039-00	METAL CHIP	390	5%	1/10W
R141	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R142	1-216-295-00	METAL CHIP	0	5%	1/10W
R143	1-216-073-00	METAL CHIP	10K	5%	1/10W
R144	1-216-033-00	METAL CHIP	220	5%	1/10W
R145	1-216-033-00	METAL CHIP	220	5%	1/10W
R147	1-216-037-00	METAL CHIP	330	5%	1/10W
R148	1-216-049-00	METAL CHIP	1K	5%	1/10W
R149	1-216-047-00	METAL CHIP	820	5%	1/10W
R150	1-216-295-00	METAL CHIP	0	5%	1/10W
R151	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R154	1-216-049-00	METAL CHIP	1K	5%	1/10W
R155	1-216-049-00	METAL CHIP	1K	5%	1/10W

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Ref.No.	Part No.	Description	Remark		
R156	1-216-295-00	METAL CHIP	0	5%	1/10W
R157	1-216-041-00	METAL CHIP	470	5%	1/10W
R158	1-216-041-00	METAL CHIP	470	5%	1/10W
R176	1-216-295-00	METAL CHIP	0	5%	1/10W
R177	1-216-081-00	METAL CHIP	22K	5%	1/10W
R178	1-216-081-00	METAL CHIP	22K	5%	1/10W
R179	1-216-041-00	METAL CHIP	470	5%	1/10W
R180	1-216-041-00	METAL CHIP	470	5%	1/10W
R182	1-216-041-00	METAL CHIP	470	5%	1/10W
R183	1-216-033-00	METAL CHIP	220	5%	1/10W
R184	1-216-025-00	METAL CHIP	100	5%	1/10W
R185	1-216-047-00	METAL CHIP	820	5%	1/10W
R186	1-216-047-00	METAL CHIP	820	5%	1/10W
R187	1-216-083-00	METAL CHIP	27K	5%	1/10W
R188	1-216-295-00	METAL CHIP	0	5%	1/10W
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R191	1-216-073-00	METAL CHIP	10K	5%	1/10W
R192	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W
R193	1-216-089-00	METAL CHIP	47K	5%	1/10W
R194	1-216-073-00	METAL CHIP	10K	5%	1/10W
R195	1-216-073-00	METAL CHIP	10K	5%	1/10W
R196	1-216-049-00	METAL CHIP	1K	5%	1/10W
R197	1-216-049-00	METAL CHIP	1K	5%	1/10W
R198	1-216-049-00	METAL CHIP	1K	5%	1/10W
R202	1-216-089-00	METAL CHIP	47K	5%	1/10W
R204	1-216-047-00	METAL CHIP	820	5%	1/10W
R205	1-216-049-00	METAL CHIP	1K	5%	1/10W
R206	1-216-295-00	METAL CHIP	0	5%	1/10W
R207	1-216-699-11	METAL CHIP	100K	0. 5%	1/10W
R208	1-216-113-00	METAL CHIP	470K	5%	1/10W
R209	1-216-121-00	METAL CHIP	1M	5%	1/10W
R212	1-216-049-00	METAL CHIP	1K	5%	1/10W
R213	1-216-049-00	METAL CHIP	1K	5%	1/10W
R218	1-216-071-00	METAL CHIP	8. 2K	5%	1/10W
R219	1-216-061-00	METAL CHIP	3. 3K	5%	1/10W
R220	1-216-071-00	METAL CHIP	8. 2K	5%	1/10W
R221	1-216-653-11	METAL CHIP	1. 2K	0. 5%	1/10W
R222	1-216-643-11	METAL CHIP	470	0. 5%	1/10W
R223	1-216-295-00	METAL CHIP	0	5%	1/10W
R231	1-216-663-11	METAL CHIP	3. 3K	0. 5%	1/10W
R232	1-216-049-00	METAL CHIP	1K	5%	1/10W
R233	1-216-035-00	METAL CHIP	270	5%	1/10W
R234	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W
R235	1-216-047-00	METAL CHIP	820	5%	1/10W
R236	1-216-047-00	METAL CHIP	820	5%	1/10W
R237	1-216-047-00	METAL CHIP	820	5%	1/10W
R238	1-216-041-00	METAL CHIP	470	5%	1/10W
R239	1-216-041-00	METAL CHIP	470	5%	1/10W
R240	1-216-041-00	METAL CHIP	470	5%	1/10W

Ref.No.	Part No.	Description	Remark		
R241	1-216-051-00	METAL CHIP	1. 2K	5%	1/10W
R243	1-216-035-00	METAL CHIP	270	5%	1/10W
R244	1-216-081-00	METAL CHIP	22K	5%	1/10W
R245	1-216-049-00	METAL CHIP	1K	5%	1/10W
R246	1-216-039-00	METAL CHIP	390	5%	1/10W
R247	1-216-039-00	METAL CHIP	390	5%	1/10W
R248	1-216-049-00	METAL CHIP	1K	5%	1/10W
R249	1-216-295-00	METAL CHIP	0	5%	1/10W
R251	1-216-095-00	METAL CHIP	82K	5%	1/10W
R252	1-216-049-00	METAL CHIP	1K	5%	1/10W
R253	1-216-121-00	METAL CHIP	1M	5%	1/10W
R254	1-216-053-00	METAL CHIP	1. 5K	5%	1/10W
R255	1-216-295-00	METAL CHIP	0	5%	1/10W
R256	1-216-295-00	METAL CHIP	0	5%	1/10W
R257	1-216-085-00	METAL CHIP	33K	5%	1/10W
R258	1-216-091-00	METAL CHIP	56K	5%	1/10W
R259	1-216-041-00	METAL CHIP	470	5%	1/10W
R260	1-216-049-00	METAL CHIP	1K	5%	1/10W
R261	1-216-049-00	METAL CHIP	1K	5%	1/10W
R262	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W
R263	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W
R264	1-216-041-00	METAL CHIP	470	5%	1/10W
R265	1-216-041-00	METAL CHIP	470	5%	1/10W
R266	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W
R269	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W
R270	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W
R271	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W
R273	1-216-699-11	METAL CHIP	100K	0. 5%	1/10W
R274	1-216-049-00	METAL CHIP	1K	5%	1/10W
R275	1-216-069-00	METAL CHIP	6. 8K	5%	1/10W
R276	1-216-067-00	METAL CHIP	5. 6K	5%	1/10W
R277	1-216-041-00	METAL CHIP	470	5%	1/10W
R278	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W
R279	1-216-071-00	METAL CHIP	8. 2K	5%	1/10W
R280	1-216-063-00	METAL CHIP	3. 9K	5%	1/10W
R281	1-216-069-00	METAL CHIP	6. 8K	5%	1/10W
R282	1-216-061-00	METAL CHIP	3. 3K	5%	1/10W
R285	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W
R287	1-216-295-00	METAL CHIP	0	5%	1/10W
R291	1-216-025-00	METAL CHIP	100	5%	1/10W
R292	1-216-051-00	METAL CHIP	1. 2K	5%	1/10W
R293	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W
R294	1-216-051-00	METAL CHIP	1. 2K	5%	1/10W
R296	1-216-049-00	METAL CHIP	1K	5%	1/10W
R297	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W
R298	1-216-295-00	METAL CHIP	0	5%	1/10W
R299	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W
R300	1-216-025-00	METAL CHIP	100	5%	1/10W
R301	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W

Ref. No.	Part No.	Description	Remark
R302	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R303	1-216-295-00	METAL CHIP	0 5% 1/10W
R305	1-216-295-00	METAL CHIP	0 5% 1/10W
R306	1-216-049-00	METAL CHIP	1K 5% 1/10W
R307	1-216-051-00	METAL CHIP	1. 2K 5% 1/10W
R308	1-216-041-00	METAL CHIP	470 5% 1/10W
R311	1-216-049-00	METAL CHIP	1K 5% 1/10W
R312	1-216-295-00	METAL CHIP	0 5% 1/10W
R313	1-216-073-00	METAL CHIP	10K 5% 1/10W
R315	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R320	1-216-295-00	METAL CHIP	0 5% 1/10W
R322	1-216-043-00	METAL CHIP	560 5% 1/10W
R323	1-216-063-00	METAL CHIP	3. 9K 5% 1/10W
R324	1-216-295-00	METAL CHIP	0 5% 1/10W
R325	1-216-049-00	METAL CHIP	1K 5% 1/10W
R326	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R327	1-216-063-00	METAL CHIP	3. 9K 5% 1/10W
R502	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R503	1-216-642-11	METAL CHIP	430 0. 5% 1/10W
R504	1-216-651-11	METAL CHIP	1K 0. 5% 1/10W
R505	1-216-666-11	METAL CHIP	4. 3K 0. 5% 1/10W
R510	1-216-089-00	METAL CHIP	47K 5% 1/10W
R511	1-216-295-00	METAL CHIP	0 5% 1/10W
R515	1-216-295-00	METAL CHIP	0 5% 1/10W
R516	1-216-295-00	METAL CHIP	0 5% 1/10W
R517	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R520	1-216-295-00	METAL CHIP	0 5% 1/10W
R526	1-216-295-00	METAL CHIP	0 5% 1/10W
R536	1-216-295-00	METAL CHIP	0 5% 1/10W
R537	1-216-295-00	METAL CHIP	0 5% 1/10W
R538	1-216-295-00	METAL CHIP	0 5% 1/10W
R636	1-216-295-00	METAL CHIP	0 5% 1/10W
R637	1-216-081-00	METAL CHIP	22K 5% 1/10W
R638	1-216-025-00	METAL CHIP	100 5% 1/10W
R639	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R640	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R641	1-216-309-00	METAL CHIP	5. 6 5% 1/10W
R642	1-216-309-00	METAL CHIP	5. 6 5% 1/10W
R644	1-216-020-00	METAL GLAZE	62 5% 1/10W
R645	1-216-049-00	METAL CHIP	1K 5% 1/10W
R646	1-216-051-00	METAL CHIP	1. 2K 5% 1/10W
R647	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R649	1-216-295-00	METAL CHIP	0 5% 1/10W
R701	1-216-037-00	METAL CHIP	330 5% 1/10W
R702	1-216-059-00	METAL CHIP	2. 7K 5% 1/10W
R704	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R705	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R706	1-216-089-00	METAL CHIP	47K 5% 1/10W
R707	1-216-083-00	METAL CHIP	27K 5% 1/10W

Ref. No.	Part No.	Description	Remark
R708	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R709	1-216-049-00	METAL CHIP	1K 5% 1/10W
R710	1-216-097-00	METAL CHIP	100K 5% 1/10W
R711	1-216-073-00	METAL CHIP	10K 5% 1/10W
R712	1-216-073-00	METAL CHIP	10K 5% 1/10W
R713	1-216-073-00	METAL CHIP	10K 5% 1/10W
R714	1-216-069-00	METAL CHIP	6. 8K 5% 1/10W
R715	1-216-109-00	METAL CHIP	330K 5% 1/10W
R716	1-216-079-00	METAL CHIP	18K 5% 1/10W
R717	1-216-073-00	METAL CHIP	10K 5% 1/10W
R723	1-216-073-00	METAL CHIP	10K 5% 1/10W
R745	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R746	1-216-089-00	METAL CHIP	47K 5% 1/10W
R748	1-216-295-00	METAL CHIP	0 5% 1/10W
R749	1-216-295-00	METAL CHIP	0 5% 1/10W

## &lt; VARIABLE RESISTOR &gt;

RV101	1-238-088-11	RES, ADJ, CERMET	2. 2K
RV102	1-238-086-11	RES, ADJ, CERMET	470
RV103	1-238-091-11	RES, ADJ, CERMET	22K
RV105	1-238-092-11	RES, ADJ, CERMET	47K
RV106	1-238-091-11	RES, ADJ, CERMET	22K
RV107	1-238-088-11	RES, ADJ, CERMET	2. 2K
RV108	1-238-089-11	RES, ADJ, CERMET	4. 7K
RV109	1-238-088-11	RES, ADJ, CERMET	2. 2K
RV111	1-238-086-11	RES, ADJ, CERMET	470
RV112	1-238-086-11	RES, ADJ, CERMET	470

## &lt; SWITCH &gt;

S501	1-554-088-00	SWITCH, KEY BOARD (CL)
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## &lt; VIBRATOR &gt;

X101	1-577-080-11	VIBRATOR, CRYSTAL (3. 58MHz)
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\*\*\*\*\*

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *****	
11	1-690-800-11	CABLE, FLAT (FFT-4) 16P	
12	1-690-799-11	CABLE, FLAT (FFT-3) 18P	
52	1-569-346-11	CONNECTOR, FPC (TRANSLATION) 10P	
53	1-643-189-11	FP-503 FLEXIBLE BOARD	
65	1-690-805-11	CABLE, FLAT (FCS-3) 15P	
66	1-690-803-11	CABLE, FLAT (FRS-9) 13P	
67	1-643-188-11	FP-502 FLEXIBLE BOARD	
69	1-569-347-11	CONNECTOR, FPC (TRANSLATION) 13P	
70	1-690-801-11	CABLE, FLAT (FSV-1) 24P	
71	1-696-042-11	CABLE, FLAT (FSV-4) 13P	
△102	1-526-985-11	AC INLET (US, Canadian)	
△107	1-466-646-11	MODULATOR, RF (RFU-1042)	
114	1-413-741-11	POWER BLOCK (US, Canadian)	
114	1-413-780-11	POWER BLOCK (PX)	
209	1-690-804-11	CABLE, FLAT (FUS-2) 14P	
276	1-628-061-12	FP-90 FLEXIBLE BOARD	
277	1-628-060-12	FP-89 FLEXIBLE BOARD	
286	1-572-173-11	SWITCH, SLIDE (ENCODER)	
△F101	1-532-743-11	FUSE, TIMER-LAG 2A 125V (US, Canadian)	
M901	A-7048-596-A	DRUM ASSY (DGU-75B-R)	
M902	8-835-331-31	MOTOR, DC U-22A (CAPSTAN)	
M903	A-7040-290-A	MOTOR ASSY, THREADING (LOADING)	
M904	X-3731-108-1	FL MOTOR ASSY	

ACCESSORIES & PACKING MATERIALS  
\*\*\*\*\*

	1-417-139-11	MATCHING TRANSFORMER, ANTENNA	
	1-558-076-41	CORD, CONNECTION	
	1-569-008-11	ADAPTOR, CONVERSION 2P (PX)	
△	1-575-181-11	CORD, POWER (PX)	
△	1-590-135-31	CORD, POWER (US, Canadian)	
	1-693-135-11	REMOTE COMMANDER (RMT-V124A)	
	3-755-407-21	MANUAL, INSTRUCTION (ENGLISH)	
	3-755-407-31	MANUAL, INSTRUCTION (FRENCH) (Canadian)	
*	3-795-581-21	SAFEGUARD (SONY), IMPORTANT (US)	
*	3-947-296-11	INDIVIDUAL CARTON	
*	3-947-297-01	CUSHION (RIGHT)	
*	3-947-298-01	CUSHION (LEFT)	

Ref. No.	Part No.	Description	Remark
		***** HARDWARE LIST *****	
#1	7-627-553-37	SCREW (M2X3), SPECIAL HEAD	
#2	7-627-555-88	SCREW (M1.4X1.8)	
#3	7-621-772-10	SCREW +B 2X4	
#4	7-627-553-68	SCREW, PRECISION +P 2X6 TYPE3	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
--	--

## SECTION 8 SERVICE MODE

☆This unit uses the EVR (Electronic Variable Resistor) for performing adjustments and tests. These functions are implemented by the SENSER LANC system.

### 8-1. SENSER LANC

SENSER LANC is the LANC format designed to perform EVR (electronic variable resistor) adjustments and various tests for this 8mm VTR by using the LANC (Control L). The SENSER LANC is synonymous with the old SERVICE LANC. But there have been enhancements and the SENSER LANC is now used as a unified word.

### 8-2. HOW TO USE THE RM-95 JIG (ADJUSTMENT REMOTE CONTROL)

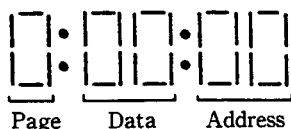
The RM-95 jig is used to operate the SENSER LANC. This jig will create the SENSER LANC Mode. Because of this, the HOLD switch has been modified for service purpose.

Note that the old models of the RM-95 have no page display function and it is needed to replace their microcomputers within these old models.

Old	UPD7503G-A71-12	8-759-142-56	No Page display
	UPD7503G-C23-12	8-759-146-77	(The microcomputer must be replaced.)
New	UPD7503G-C56-12	8-759-148-35	Page display

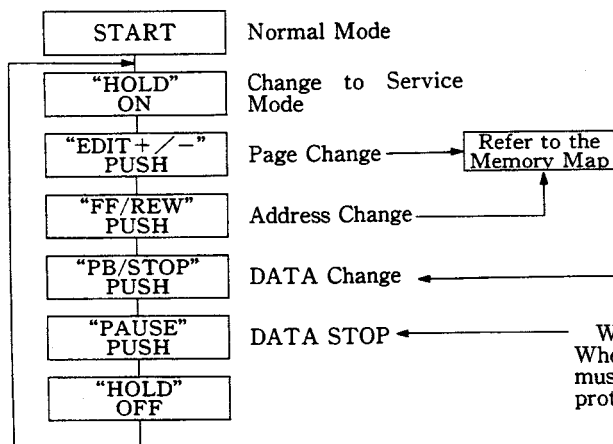
LCD Display of RM-95

Example



This means that the data on page 1, address 3D is 37.

### 8-3. HOW TO CHANGE THE SERVICE MODE WITH RM-95



LCD Display  
(Hexadecimal form)  
P : DD : AA  
(F : 00 : 00)

Display Data

The data at the selected address will be displayed. The page entered first from Normal mode is 0.

P : 00 : 00

If a selected page is not incorporated, the preset data value will be indefinite. When a change is made within an incorporated page, the address will remain intact.

P : DD : AA

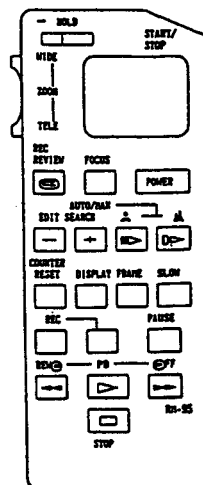
<When ADJ Data Has Been Changed>

The EVR value (RAM) will be renewed by changed data. (This data will not be written to EE PROM.)

Write to EE PROM.  
When writing changed data to EEPROM, WRITE PROTECT must be released before it cannot be written. To release this protect, the data on page 0, address 00 must be set to 01 first.

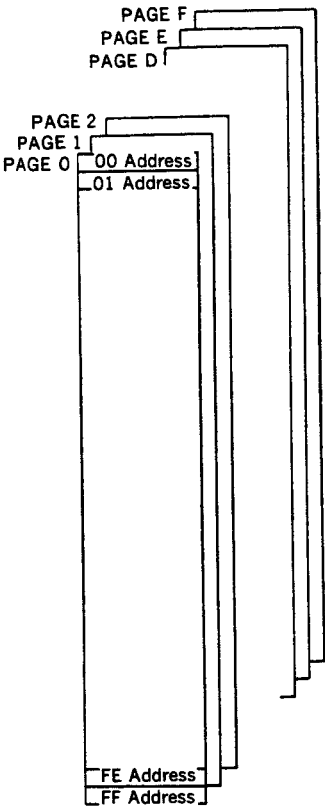
RM-95 (J-6082-053-B)

Command	Action	RM-95 Control Button Pushed
Page Up	Page+1	Edit Search+
Page Down	Page-1	Edit Search-
Direct Page Set	Sets to specified page.	Event Clear
Address Up	Address+1	Fast Forward
Address Down	Address-1	Rewind
Data Up	Data+1	Play Back
Data Down	Data-1	Stop
Store	Writes data to EEPROM. RAM	Pause





8-4. SENSER LANC MEMORY MAP



This unit has pages 0 to F allocated as listed below.

PAGE	Page Allocation
0	Service
1	
2	System Controler
3	System Controler
4	System Controler
5	
6	
7	Timer/Tuner Controler
8	Timer/Tuner Controler
9	Timer/Tuner Controler
A	
B	
C	
D	
E	
F	

**Note :** This set has no EE-PROM built-in and so it has no “D page”

### 8-5. TEST MODE SETTING

Variety of test modes are established and changed as listed below.

Page 0	Address 02
--------	------------

Data	Function
00	Normal
01	Test Mode 1 Various Emergencies, Inhibit and Release Drum, Capstan, Loading Motor, Reel, Tape Top and End, DEW SP/LP Automatic Discrimination Inhibit, Manual Changeover
02	Test Mode 2 • Playback Frequency Characteristic 1'ch Adjustment With the ATF servo shifted one track, playback tape and allow taking RF on 1 channel. (This is valid only in playback mode.) SP/LP is protected from being distinguished and REC SP/LP followed.
03	Test Mode 3 Track Shift Playback • With a forward shift of 1/3 to 1/4 track, playback tape. (This is valid only in playback mode.) SP/LP is protected from being distinguished and REC SP/LP is followed.

\* After completing necessary adjustments/repairs, be sure to return the data at this address to 00.

### 8-6. EMERGENCY CODES

These codes can be used to check the condition of failure (abnormality) that occurred.

Page 0	Address 07
--------	------------

#### Last Emergency Code

.... The code of the last failure that occurred (This data will be renewed each time a failure occurs.

\* When the RESET button on the main body is pressed and when the AC power is disconnected, the emergency code data will be reset to "00".

Code	Condition of Failure
00	No Failure
01	Loading Motor Failure
02	Reel Failure during Unloading
03	Reel Failure during operation other than unloading
04	Capstan Failure
05	FG Failure at Start of Drum
06	PG no Failure at Start of Drum
07	FG Failure when Drum is Stationary
08	FG Failure at Start of Drum during loading
09	PG no Failure at Start of Drum during loading
0A	FG Failure when Drum is Stationary during loading
0B	FG Failure at Start of Drum during unloading
0C	PG no Failure at Start of Drum during unloading
0D	FG Failure when Drum is Stationary during unloading

### 8-7. EMERGENCY MODE

This mode allows you to check the mode of operation in which the VTR was placed when failure occurred.

Page 0	Address 09
--------	------------

Last Emergency Code

....The code of the last failure that occurred  
(This data will be renewed each time a failure occurs.)

\* When the RESET button on the main body is pressed and when the AC power is disconnected, the emergency code data will be reset to "00".

Code	Condition of Failure
10	EJECTED
20	STOP
26	STOP TAPE END
27	STOP TAPE TOP
29	STOP ZERO
30	FF
33	FF ZERO PB
34	FF ZERO STOP
38	REW
3A	REW PB
3B	REW ZERO PB
3C	REW ZERO STOP
40	REC
41	REC PAUSE
42	TIMER REC
43	TIMER REC PAUSE
48	A INSERT
49	A INSERT PAUSE
60	PB
62	+1
63	-1
64	CUE
65	REVIEW
66	+2
67	-1
68	LOCKED CUE
69	LOCKED REVIEW

Code	Condition of Failure
70	+STILL
71	-STILL
72	+SLOW, +SLOW 1/5
73	-SLOW, -SLOW 1/5
74	+SLOW 1/10
75	-SLOW 1/10
76	+FRAME
77	-FRAME

### 8-8. RF SWITCHING POSITION ADJUSTMENT MODE

When adjusting the RF switching position, set up as follows :

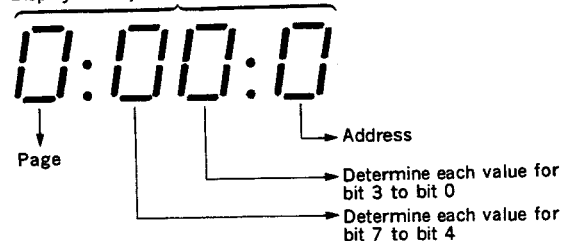
Page 7	Address 80
--------	------------

Data	Function
00	Normal
05	Switching position adjustment mode

### 8-9. DETERMINATION OF BIT VALUE

For the following items, the data displayed on the adjustment remote control is used to determine the bit value. The list below should be checked to determine whether the bit value is "1" or "0".

Display on Adjustment Remote Control



Display on Remote Control	Bit Value			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0

⑧ →

Display on Remote Control	Bit Value			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
9	1	0	0	1
A (㏐)	1	0	1	0
B (㏑)	1	0	1	1
C (㏒)	1	1	0	0
D (㏓)	1	1	0	1
㉔→ E (㏔)	1	1	1	0
F (㏕)	1	1	1	1

(Example) If the data displayed on the remote control is “8E”, the values for bit 7 to bit 4 can be determined from the values in the column ㉔. The value for bit 3 to bit 0 can be determined from the values in the column ㉔.

#### 8-10. 0 PAGE MEMORY MAP

Adjustment Address	Contents	Remarks
00	Not used	
01	Not used	
02	Test Mode (COSMO)	
03	Switching Position Data (LOW)	Read only
04	Switching Position Data (HIGH)	Read only
05		
06		
07	Emergency Code (LAST)	
08		
09	Emergency Mode (LAST)	
0A		
0B		
0C		
0D		
0E		
0F		

## SECTION 9 MECHANICAL ADJUSTMENTS

### For Mechanical Adjustments

For the procedures how to adjust and check the mechanism, as well as how to replace mechanical parts, refer to the separate 8mm Video Mechanical Adjustment Manual III (9-972-732-01).

However, for the procedures how to set the Track Shift mode, refer to the following text.

### 9-1. TAPE PASS ADJUSTMENT (TRACK SHIFT)

The 8mm Video Tape Recorder system uses the AFT (Automatic Track Finding) function in which four different pilot signals are used for controlling the tape speed instantaneously to provide high precision tracking. This eliminates the Tracking Adjustment control, thus allowing accurate tracing.

In spite of its advantageous feature, the AFT system may have a difficulty in adjusting the tape pass system. The ATF will automatically corrects tracing even if the head has only a little tracing distortion. This may make it impossible to perform a complete adjustment.

Therefore, when performing a fine adjustment for tracking, the Track Shift mode should be entered before starting this adjustment. This mode will force to operate the ATF to shift the amount of tracking by a given quantity (approximately 1/4), so that tracking can be easily fine adjusted. Furthermore, no track shift jig is needed.

#### 9-1-1. Setting the Track Shift Mode

- 1) Place the adjustment remote control RM-95 (J-6082-053-B) in the HOLD ON position.
- 2) Operate the EDIT+/- button to select adjustment page 0.
- 3) Operate the FF/REW button to select adjustment address 02.
- 4) Operate the PB/STOP button to set to adjustment data 03. (This will go to the Test Mode 3 (Pass Adjustment).)

**Note 1 :** For details of the Test Mode, refer to "SECTION 8. SERVICE MODE."

**Note 2 :** If the LP mode is recognized by the system wrongly, operate the Recording Time SP/LP button to enter the SP mode.

**Note 3 :** After adjustment, operate the PB/STOP button to reset to adjustment data 00. Place the remote control in the HOLD OFF position to return to the normal mode.

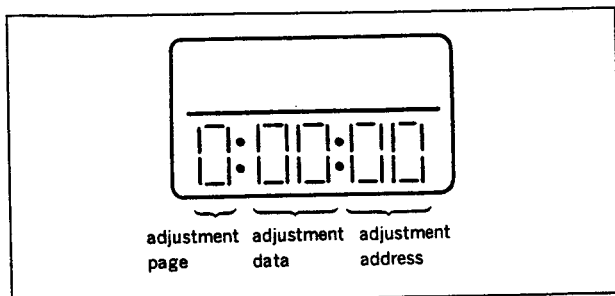


Fig. 9-1.

#### 9-1-2. Preparation before Adjustment

- 1) Clean the surfaces over which tape moves past (of the tape guides, drum, capstan shaft and pinch rollers).
  - 2) Oscilloscope Connection and Waveform Output:  
1 ch: Drum head's RF signal output, RP-134 board CN003 pin ③ (PB RF)  
External trigger input: RP-134 board CN003 pin ④ (RF SWP)  
GND: RP-134 board CN003 pin ② (GND)
  - 3) Play back alignment tape for tracking (WR5-1NP).
  - 4) Check that RF waveform observed on the oscilloscope is flat on both entrance and exit sides.
- If not flat, perform necessary adjustment according to the separate 8 mm Video Mechanical Adjustment III.

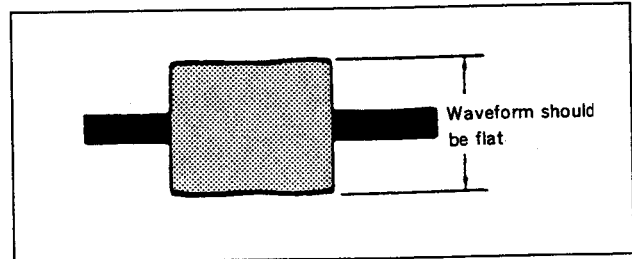


Fig. 9-2.

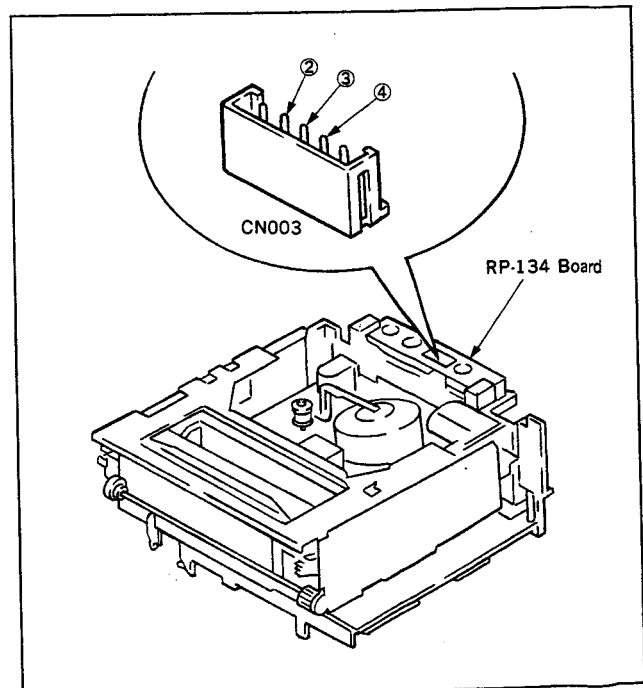


Fig. 9-3.



## SECTION 10 ELECTRICAL ADJUSTMENTS

See the adjusting part location diagram from on page 140 for the adjustment.

For details of the SENSER LANC, refer to "SECTION 8. SERVICE MODE".

### 10-1. PREPARATION BEFORE ADJUSTMENT

#### 10-1-1. Equipment Required

The measuring instruments used for this alignment include:

- 1) Monitor TV
- 2) Oscilloscope, dual-trace, bandwidth of 30MHz or more, with delay mode (A probe 10:1 should be used unless otherwise specified.)
- 3) Frequency counter
- 4) Pattern generator (with Video Output terminal; refer to Section 10-1-2. Equipment Connection.)
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Vector scope
- 11) Alignment tapes
  - For tracking adjustment (WR5-1NP)  
Part No.: 8-967-995-02
  - For video frequency adjustment (WR5-6N)  
Part No.: 8-967-995-12
  - For operation check  
For SP (WR5-5NSP)  
Part No.: 8-967-995-42  
or (WR5-4NSP)  
Part No.: 8-967-995-41  
For LP (WR5-4NL)  
Part No.: 8-967-995-51
  - For AFM stereo operation check (WR5-9NS)  
Part No.: 8-967-995-23
- 12) Adjustment remote control (J-6082-053-B)

#### 10-1-2. Equipment Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown in the following diagram.

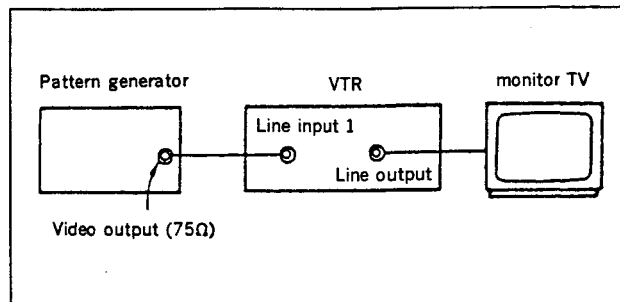


Fig. 10-1.

- Make adjustment with the switches set to the following positions:  
INPUT SELECT....LINE

#### 10-1-3. Input Signal Check

In this adjustment, NTSC pattern generator is connected with LINE 1 input signal terminal. When check to tuner, connected VHF antenna terminal. Check that the amplitudes of video signal SYNC signal, of picture portions, and of burst signals are flat at approximately 0.3, 0.7 and 0.3V, respectively, and that the level ratio of the burst signal and "red" signal are 0.30 : 0.66. Fig. 10-2. shows video signals (color bars) used in adjusting the video section.

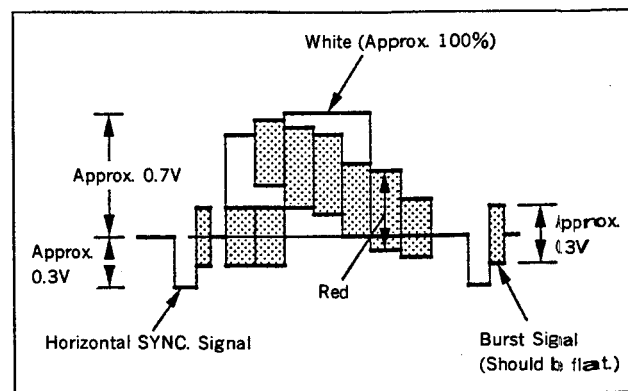


Fig. 10-2.

#### 10-1-4. Alignment Tapes

The following alignment tapes are available.

The tape specified in the signal column for the adjustment to be performed should be used.

Note that if no tape code is specified for the adjustments in which alignment tapes for operation check are used, any tape for operation check may be used.

Alignment Tape	Tape Speed	Contents of Record		Applications
		Video Area	PCM Area	
Tracking WR5-1NP (8-967-995-02)	SP	CH2: 1MHz tape pass adjustment signal Switching position adjustment marker (CH1: 9MHz)		Tape pass adjustment Switching position adjustment
Video frequency characteristic WR5-6N (8-967-995-12)	SP	RF sweep 0 to 10MHz Marker 1, 3.58, 5.5 and 7MHz		Frequency characteristic
Operation check WR5-4NSP (8-967-995-41) or WR5-5NSP (8-967-995-42)	SP	<ul style="list-style-type: none"> <li>● Video signal Color bar 4 min. Monoscope 4 min.</li> <li>● Audio signal (AFM) 400Hz 60% modulated</li> </ul>	<ul style="list-style-type: none"> <li>● Audio signal (PCM) Monoscope portion 20Hz 20sec. } This cycle 400Hz 20sec. } is repeated 14kHz 20sec. } 4 times Color bar portion 1kHz 4min.</li> </ul>	Operation check
WR5-4NL (8-967-995-51)	LP	<ul style="list-style-type: none"> <li>● Video signal Color bar 4 min. Monoscope 4 min.</li> <li>● Audio signal (AFM) 400Hz 60% modulated</li> </ul>		
AFM stereo operation check WR5-9NS (8-967-995-23)	SP	<ul style="list-style-type: none"> <li>● Video signal Color bar 4 min. Monoscope 4 min.</li> <li>● Audio signal (AFM) Stereo portion (color bar) Lch: 400Hz Rch: 1kHz (L+R 1.5MHz±60kHz DEV) (L-R 1.5MHz±30kHz DEV) Bilingual portion (monoscope) MAIN: 400Hz (1.5MHz±60kHz DEV) SUB: 1kHz (1.7MHz±30kHz DEV)</li> </ul>	<ul style="list-style-type: none"> <li>● Audio signal (PCM) 400Hz 8 min.</li> </ul>	AFM stereo operation check

The color bar signal recorded on these alignment tapes are shown in Fig. 10-3.

**Note :** This waveform is measured at the VIDEO OUT terminal (terminated at 75Ω).

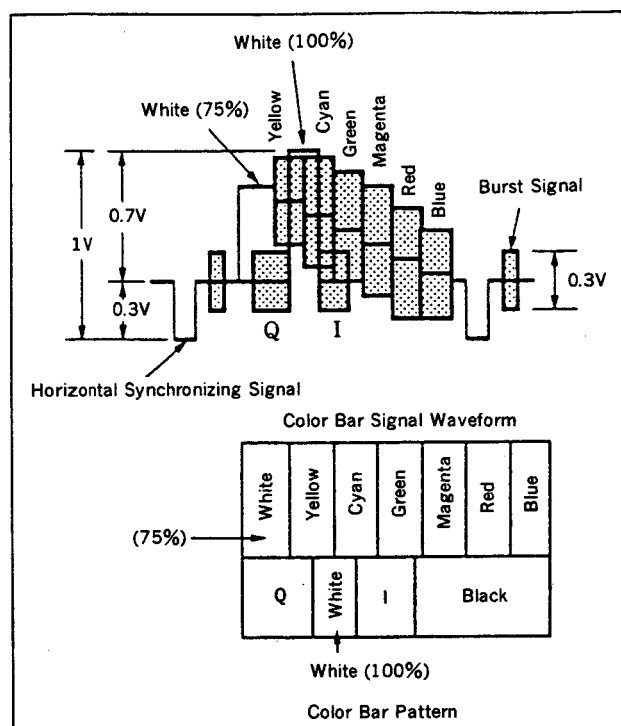


Fig. 10-3. Color Bar Signal of Alignment Tape

#### 10-1-5. Input/Output Levels and Impedance

Video input LINE IN VIDEO (phono jack) (1 each)

Input signal : 1Vp-p, 75 ohms, unbalanced,  
sync negative

Video output LINE OUT VIDEO (phono jack) (1 each)

Output signal : 1Vp-p, 75ohms, unbalanced,  
sync negative

Audio input LINE IN AUDIO (phono jack) (1 each)

Input level : -7.5 dBs


Input impedance : more than 47 kilohms

Audio output LINE OUT AUDIO (phono jack) (1 each)

Standard impedance : -7.5 dBs at load impedance  
47 kilohms

Output impedance : less than 10 kilohms

CONTROL S IN Minijack

CONTROL L  Stereo mini-mini jack

## 10-2. POWER SUPPLY CHECK

### 10-2-1. Output Voltage Check

(POWER SUPPLY BOARD)

Mode	E-E
Measurement instrument	Digital voltmeter
UN 10.5V check	
Measurement point	CN001 pin ⑧
Specified value	$10.5 \pm 0.1\text{Vdc}$
UN 5.7V check	
Measurement point	CN001 pin ⑤
Specified value	$5.7 \pm 0.1\text{Vdc}$
SW 5V check	
Measurement point	CN001 pin ④
Specified value	$5.10 \pm 0.05\text{Vdc}$
UN -5V check	
Measurement point	CN001 pin ①
Specified value	$-5.0 \pm 0.1\text{Vdc}$

#### [Check Method]

- Each of these supply voltages must meet its specified value.

### 10-3. SYSTEM CONTROL SYSTEM CHECK

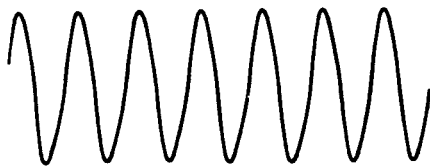
#### 10-3-1. Timer Clock Check (LC-38 Board)

Mode	E-E
Signal	Arbitrary
Measurement point	IC101 pin ④
Measuring instrument	Frequency counter
Specified value	$10000 \pm 100\text{kHz}$

**Note:** A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

#### [Check Method]

- 1) Check to  $10000 \pm 100\text{kHz}$ .



$10000 \pm 100\text{kHz}$

Fig. 10-4.

### 10-4. SERVO SYSTEM ADJUSTMENTS

#### [Adjustment sequence]

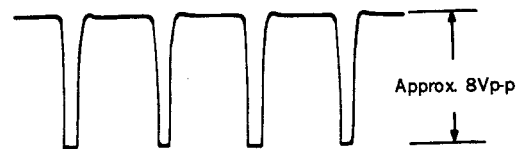
1. PWM Frequency Adjustment
2. Switching Position Adjustment
3. SLOW Adjustment

#### 10-4-1. PWM Frequency Adjustment (SS-144 Board)

Mode	Record
Signal	Arbitrary
Measurement point	IC005 pin ⑦
Measuring instrument	Frequency counter
Adjustment element	RV102
Specified value	$476.5 \pm 5.0\text{kHz}$

#### [Adjustment Method]

- 1) Set Recording Time to SP mode.
- 2) Use RV005 to adjust to  $476.5 \pm 5.0\text{kHz}$ .
- 3) Set Recording Time to LP mode.
- 4) Check for at  $476.5 \pm 5.0\text{kHz}$ .
- 5) If the specification is not met, repeat Steps 1) to 4).



$476.5 \pm 5.0\text{kHz}$

Fig. 10-5.

#### 10-4-2. Switching Position Adjustment (LC-38 Board)

Mode	Playback
Signal	Alignment tape: For operation check (WR5-1NP)
Measurement point	CH-1: RP-134 board CN003 pin ④ (RF SWP) CH-2: RP-134 board CN003 pin ③ (PB RF)
Measuring instrument	Oscilloscope
Adjustment page	0
Adjustment address	03 (Switching Position Data (LOW)) 04 (Switching Position Data (HIGH))
Adjustment element	RV001 RV002
Specified value	$t = 0 \pm 5 \mu\text{sec}$

#### [Adjustment Method]

- 1) Place the adjustment remote control RM-95 (J-6082-053-B) in the HOLD ON position.
- 2) Use EDIT+/- button to select adjustment page 7.
- 3) Use FF/REW button to select adjustment address 80.
- 4) Use PB/STOP button to set to adjustment data 05.
- 5) Press PAUSE button on the remote control to store the adjustment data.
- 6) Use EDIT+/- button to select adjustment page 0.
- 7) Use FF/REW button to select adjustment address 04.
- 8) Use RV001 to adjust to  $t = 0 \pm 255 \mu\text{sec}$ .
- 9) Use FF/REW button to select adjustment address 03.
- 10) Use RV002 to adjust to  $t = 0 \pm 5 \mu\text{sec}$ .
- 11) Use EDIT+/- button to select adjustment page 7.
- 12) Use FF/REW button to select adjustment address 80.
- 13) Use PB/STOP button to set to adjustment data 00.
- 14) Press PAUSE button on the remote control to store the adjustment data.

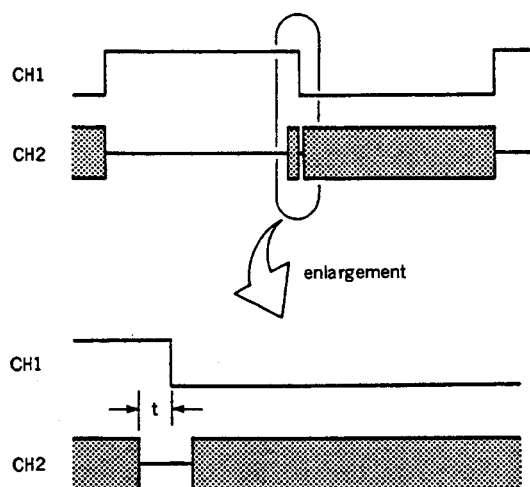


Fig. 10-6.

#### 10-5. VIDEO SYSTEM ADJUSTMENTS

Color video signal supplied from a pattern generator is used as a video input signal for Video System Alignment in the Recording mode. This signal should be checked to ensure that it meets the specifications provided in Fig. 10-2 and "INPUT SIGNAL CHECK".

The adjustments in Video System Alignment should be performed in the following sequence.

#### [Adjustment sequence]

1. MIDDLE TUNE Adjustment
2. EE Level Adjustment
3. IR Adjustment
4. Y/Chroma Separation Adjustment
5. Emphasis Y Level Adjustment
6. AC Clip Check
7. Y FM Carrier, Y FM Deviation Adjustment
8. Recording Y Level Adjustment
9. Chroma Emphasis Adjustment
10. Recording Chroma Level Adjustment
11. Playback Y Level Adjustment
12. De-emphasis Y Level Check
13. CCD Direct Level Adjustment



### 10-5-1. MIDDLE TUNE Adjustment (RP-134 Board)

(1) 1ch,2ch

**Note:** The designation [ ] stands for adjustment on CH-2.

Mode	Playback
Signal	Alignment tape: for frequency characteristic adjustment (WR5-6N)
Measurement point	CN003 pin ③ (PB RF) External trigger: CN003 pin ④ (RF SWP) Trigger slope:—[+]
Measuring instrument	Oscilloscope
Adjustment element	RV002 [RV001]
Specified value	3.58MHz level: 5.5MHz level=4 : 3±1

#### [Adjustment Method]

- 1) Use RV002 [RV001] to adjust so that the ratio of 3.58MHz level to 5.5MHz of PB RF output waveform is 4 : 3±1.

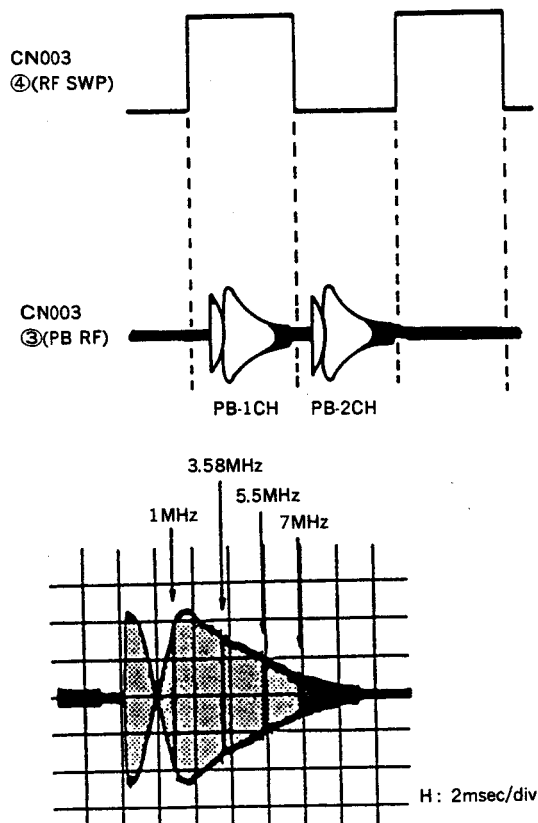


Fig. 10-7.

(2) 1'ch

Mode	Playback
Signal	Alignment tape: for frequency characteristic adjustment (WR5-6N)
Measurement point	CN003 pin ① (1'CH RF) External trigger: CN003 pin ④ (RF SWP)
Measuring instrument	Oscilloscope
Adjustment page	D
Adjustment address	02 (Test Mode (COSMO))
Adjustment element	RV003
Specified value	3.58MHz level: 5.5MHz level=4 : 3±1

#### [Adjustment Method]

- 1) Place the adjustment remote control in the HOLD ON position.
- 2) Use EDIT+/- button to select adjustment page 0.
- 3) Use FF/REW button to select adjustment address 02.
- 4) Use PB/STOP button to select adjustment data 02.
- 5) Press PAUSE button on the remote control to store the adjustment data.
- 6) Use RV003 to adjust so that the ratio of 3.58MHz level to 5.5MHz of PB RF output waveform is 4 : 3±1.
- 7) Use EDIT+/- button to select adjustment page 0.
- 8) Use FF/REW button to select adjustment address 02.
- 9) Use FF/REW button to select adjustment address 00.
- 10) Press PAUSE button on the remote control to store the adjustment data.
- 11) Place the adjustment remote control in the HOLD OFF position.

### 10-5-2. EE Level Adjustment (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	CN511 pin ① (LINE OUT V)
Measuring instrument	Oscilloscope
Adjustment element	RV106
Specified value	$1.00 \pm 0.05 \text{Vp-p}$

#### [Adjustment Method]

- 1) Use RV106 to adjust to  $1.00 \pm 0.05 \text{Vp-p}$ .

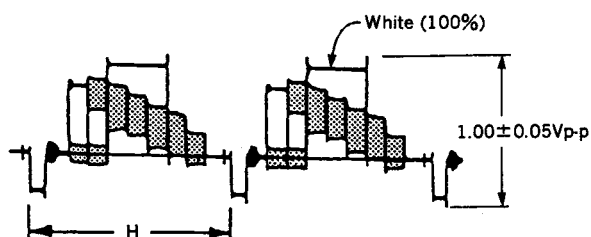


Fig. 10-8.

### 10-5-3. IR Adjustment (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	IC101 pin ⑦ (Y COMB OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV103
Specified value	Red residual chroma component should be minimized (to 60mVp-p or less).

#### [Connection]

- 1) Connect between pin ⑤ (SWP) and pin ⑭ (V REF) of IC101.

#### [Adjustment Method]

- 1) Use RV103 to adjust so that the red residual chroma component is minimized (to a level of 60mVp-p or less).

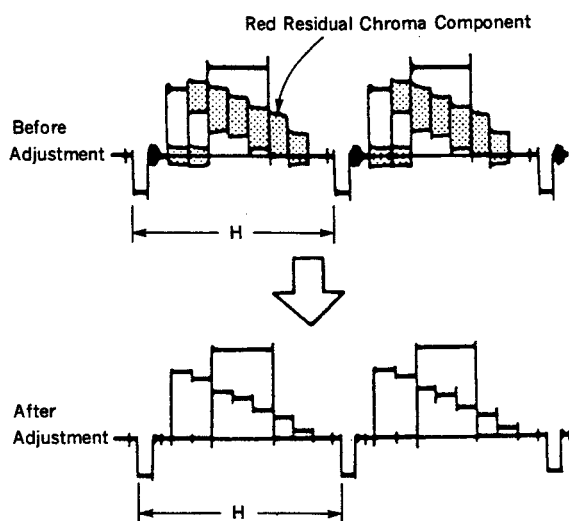


Fig. 10-9.

#### 10-5-4. Y/Chroma Separation Adjustment (VI-111 Board)

Mode	E-E
Signal	Color bar (VIDEO)
Measurement point	IC101 pin ⑩ (C+CD)
Measuring instrument	Oscilloscope
Adjustment element	RV111 (PHASE) RV105 (GAIN)
Specified value	Red residual chroma component should be minimized (to 30mVp-p or less).

##### [Adjustment Method]

- 1) Adjust RV111 and RV105 alternately to minimize the red residual chroma component (to a level of 30mVp-p or less).

**Note :** The adjustment should be performed in the sequence of RV105 to RV111 to RV105 to RV111 two or more times for each trimming.

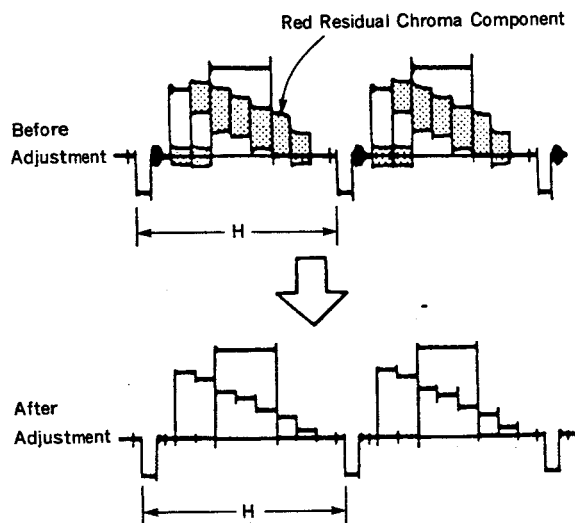


Fig. 10-10.

#### 10-5-5. Emphasis Y Level Adjustment (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	IC101 pin ③ (EMPH Y)
Measuring instrument	Oscilloscope
Adjustment element	RV109
Specified value	$0.50 \pm 0.02V_{p-p}$

##### [Adjustment Method]

- 1) Use RV109 and adjust to  $0.50 \pm 0.02V_{p-p}$ .

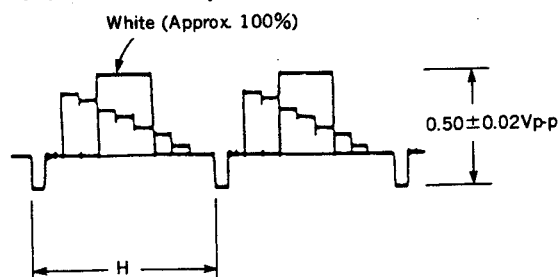


Fig. 10-11.

#### 10-5-6. AC Clip Check (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	IC101 pin ⑤ (DEV)
Measuring instrument	Oscilloscope
Specified value	White Clip: $\frac{B}{A} \times 100 = 235 \pm 10\%$ Dark Clip: $\frac{C}{A} \times 100 = 95 \pm 10\%$

**Note:** To measure with the oscilloscope, effect the band limit of 20MHz.

##### [Check Method]

- 1) Check that the output waveform at IC101 pin ⑤ is  $\frac{B}{A} \times 100 = 235 \pm 10\%$ . Also check that the output waveform at IC101 pin ⑤ is  $\frac{C}{A} \times 100 = 95 \pm 10\%$ .

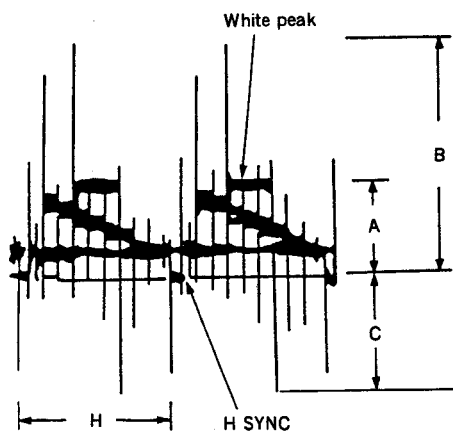


Fig. 10-12.

#### 10-5-7. Y FM Carrier Frequency, Y FM Deviation Adjustment

##### (1) Y FM Carrier Frequency Adjustment (VI-111 Board)

Mode	Record
Signal	No signal
Measurement point	CN502 pin ⑨ (REC Y RF)
Measuring instrument	Frequency counter Oscilloscope
Adjustment element	RV108
Specified value	$4.37 \pm 0.02\text{MHz}$

**Note:** A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

##### [Adjustment Method]

- 1) Use RV108 to adjust to  $4.37 \pm 0.02\text{MHz}$ .



Fig. 10-13.

## (2) Y FM Deviation Adjustment (VI-111 Board)

Mode	Record and playback
Signal	Color bar
Measurement point	LINE VIDEO OUT terminal
Measuring instrument	Oscilloscope
Adjustment element	RV107
Specified value	Playback level should be at $1.00 \pm 0.05V_{p-p}$ .

### [Adjustment Method]

- 1) Record color bar signal.
- 2) Play back the recorded signal.
- 3) Check the playback output level.  
Specification:  $1.00 \pm 0.05V_{p-p}$
- 4) If the specification is not met, rotate RV107 as directed below and then repeat Steps 1) to 4).

	Direction of Rotating RV107
Over specified value	Counterclockwise ( $\curvearrowright$ )
Below specified value	Clockwise ( $\curvearrowleft$ )

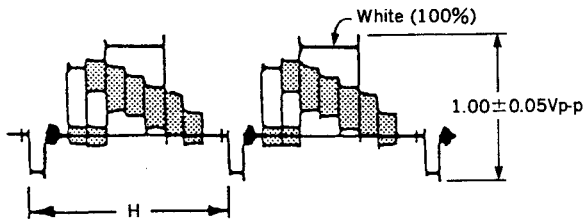


Fig. 10-14.

## 10-5-8. Recording Y Level Adjustment (VI-111 Board)

Mode	Record
Signal	No signal
Measurement point	CN502 pin ⑨ (REC Y RF)
Measuring instrument	Oscilloscope
Adjustment element	RV102
Specified value	$260 \pm 10mV_{p-p}$

### [Adjustment Method]

- 1) Record.
- 2) Use RV102 to adjust to  $260 \pm 10mV_{p-p}$ .

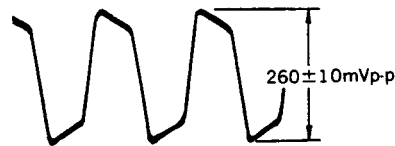


Fig. 10-15.

## 10-5-9. Chroma Emphasis Adjustment (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	IC103 pin ② (B.EMPH 0)
Measuring instrument	Oscilloscope
Adjustment element	FL105
Specified value	fo component should be reduced to a minimum.

### [Adjustment Method]

- 1) Adjust FL105 to allow the latter half of the yellow component in the chroma signal to have a minimum amplitude.

Allow the latter half of the yellow component to have a minimum amplitude.

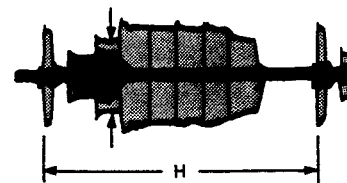


Fig. 10-16.



#### 10-5-10. Recording Chroma Level Adjustment (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	CN502 pin ⑩ (REC C RF)
Measuring instrument	Oscilloscope
Adjustment element	RV112
Specified value	$140 \pm 10 \text{ mVp-p}$

##### [Adjustment Method]

- 1) Adjust RV112 so that the flat portion of the chroma signal RED component has the level  $140 \pm 10 \text{ mVp-p}$ .

Adjustment so that the portion of the chroma signal RED component has the level  $140 \pm 10 \text{ mVp-p}$ .

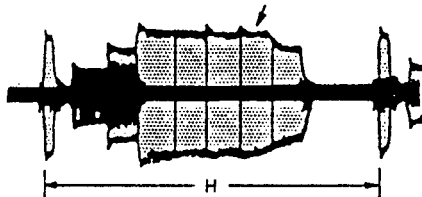


Fig. 10-17.

#### 10-5-11. Playback Y Level Adjustment (VI-111 Board)

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-5NSP)
Measurement point	IC511 pin ①
Measuring instrument	Oscilloscope
Adjustment element	RV101
Specified value	$1.00 \pm 0.05 \text{ Vp-p}$

##### [Adjustment Method]

- 1) Use RV101 to adjust to  $1.00 \pm 0.05 \text{ Vp-p}$ .

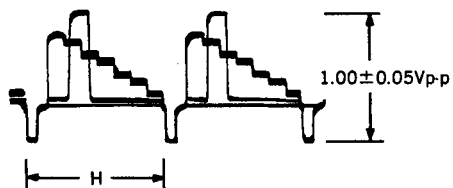


Fig. 10-18.

#### 10-5-12. De-emphasis Y Level Check (VI-111 Board)

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-5NSP)
Measurement point	IC101 pin ⑫ (DL IN 1)
Measuring instrument	Oscilloscope
Specified value	$0.5 \pm 0.1 \text{ Vp-p}$

##### [Check Method]

- 1) Check to  $0.5 \pm 0.1 \text{ Vp-p}$ .

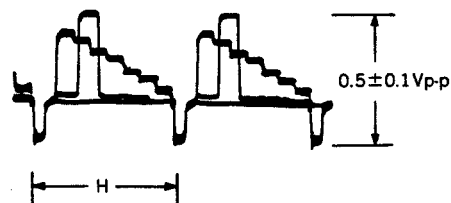


Fig. 10-19.

### 10-5-13. CCD Direct Level Adjustment (NJ-4 Board)

Mode	Playback Pause (SP mode)
Signal	Alignment tape: For operation check, (WR5-5NSP) Color bar portion
Measurement point	LINE VIDEO OUT terminal
Measuring instrument	Oscilloscope
Adjustment element	RV801
Specified value	The level difference between playback and pause modes must be $0 \pm 0.05V_{p-p}$ .

**Note:** The LINE VIDEO OUT terminal (RJ-35 board J501) should be terminated at 75 ohms.

#### [Adjustment Method]

- 1) Confirm that the video signal level is at  $1.00 \pm 0.05V_{p-p}$  in playback mode.
- 2) Enter the playback pause mode.
- 3) Adjust RV801 so that the video signal level is equal to during playback.

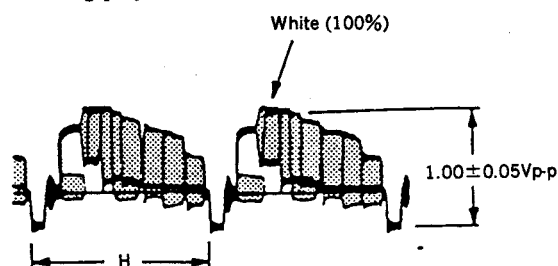


Fig. 10-20.

### 10-6. AUDIO SYSTEM ADJUSTMENTS

Color bar signal should be used as Video signal input for performing this adjustment.

#### [Connection of Equipment for Audio Measurement]

In addition to equipment for video measurement, equipment for audio system measurement should be connected as illustrated below.

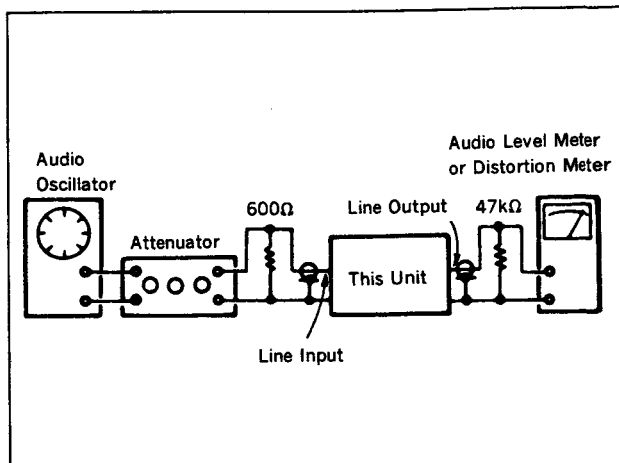


Fig. 10-21.

Unless otherwise specified, place the switches and controls of this unit in the following positions:

- Input Select switch ..... LINE

The adjustments should be performed in the following sequence.

#### [Adjustment sequence]

1. Carrier Frequency Adjustment
2. Playback Level Check
3. Overall Level Check
4. Overall Distortion Factor Check
5. Overall Noise Level Check
6. Overall Frequency Characteristic Check

### 10-6-1. Carrier Frequency Adjustment (AU-127 Board)

Mode	Record
Signal	No signal
Measurement point	CN902 pin ① (REC AFM)
Measuring instrument	Frequency counter
Adjustment element	RV901
Specified value	$1500 \pm 3\text{kHz}$

**Note:** A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

#### [Adjustment Method]

- 1) Use RV901 to adjust to  $1500 \pm 3\text{kHz}$ .

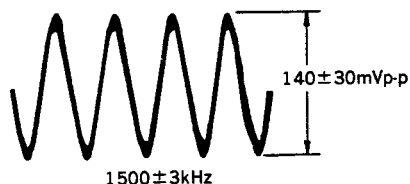


Fig. 10-22.

### 10-6-2. Playback Level Check (AU-127 Board)

Mode	Playback
Signal	Alignment tape: For operation check, 400Hz portion (WR5-9NS)
Measurement point	LINE AUDIO OUT terminal
Measuring instrument	Audio level meter
Specified value	$-7.5 \pm 2.0\text{dBs}$

#### [Adjustment Method]

- 1) Check level is at  $-7.5 \pm 2.0\text{dBs}$ .

### 10-6-3. Overall Level Check

Mode	Record (SP/LP mode)
Signal	400Hz, $-7.5\text{dBs}$
Measurement point	LINE AUDIO OUT terminal
Measuring instrument	Audio level meter
Specified value	$-7.5 \pm 3\text{dBs}$

#### [Check Method]

- 1) Record to SP mode.
- 2) Check level is at  $-7.5 \pm 3\text{dBs}$ .
- 3) Record to LP mode.
- 4) Check level is at  $-7.5 \pm 3\text{dBs}$ .

### 10-6-4. Overall Distortion Factor Check

Mode	Self-record playback (SP/LP mode)
Signal	400Hz, $-7.5\text{dBs}$
Measurement point	LINE AUDIO OUT terminal
Measuring instrument	Distortion meter
Specified value	0.25% or less

#### [Check Method]

- 1) Record signal to SP/LP mode.
- 2) Play back the recorded portion.
- 3) Check that the distortion factor is 0.25% or less.

### 10-6-5. Overall Noise Level Check

Mode	Self-record playback (LP mode)
Signal	No signal (Insert a shorting plug into the Audio Line Input jack.)
Measurement point	LINE AUDIO OUT terminal
Measuring instrument	Audio level meter
Specified value	$-60\text{dBs}$ or less <small>Note)</small>

#### [Check Method]

- 1) Record.
- 2) Play back recorded portion.
- 3) Check that the noise level is  $-60\text{dBs}$  or less.

**Note:** This is a value when an IHF-A weighing filter is used.

10-6-6. Overall Frequency Characteristic Check

Mode	Self-record playback
Signal	Ⓐ 400Hz, -7.5dBs Ⓑ 20Hz, -7.5dBs Ⓒ 14kHz, -7.5dBs : Audio Line Input terminal
Measurement point	LINE AUDIO OUT terminal
Measuring instrument	Audio level meter
Specified value	The playback output levels of 20Hz and 14kHz should be $0 \pm 3$ dBs with 400Hz playback output level at 0dBs.

[Check Method]

- 1) Record signals Ⓐ to Ⓒ in turn.
- 2) Play back the recorded portion.
- 3) Check that the respective playback output levels of 20Hz and 14kHz are  $0 \pm 3$ dBs with 400Hz playback output level at 0dBs.

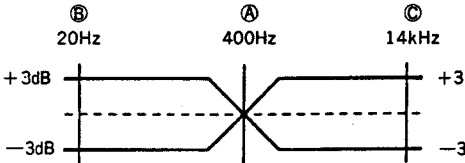
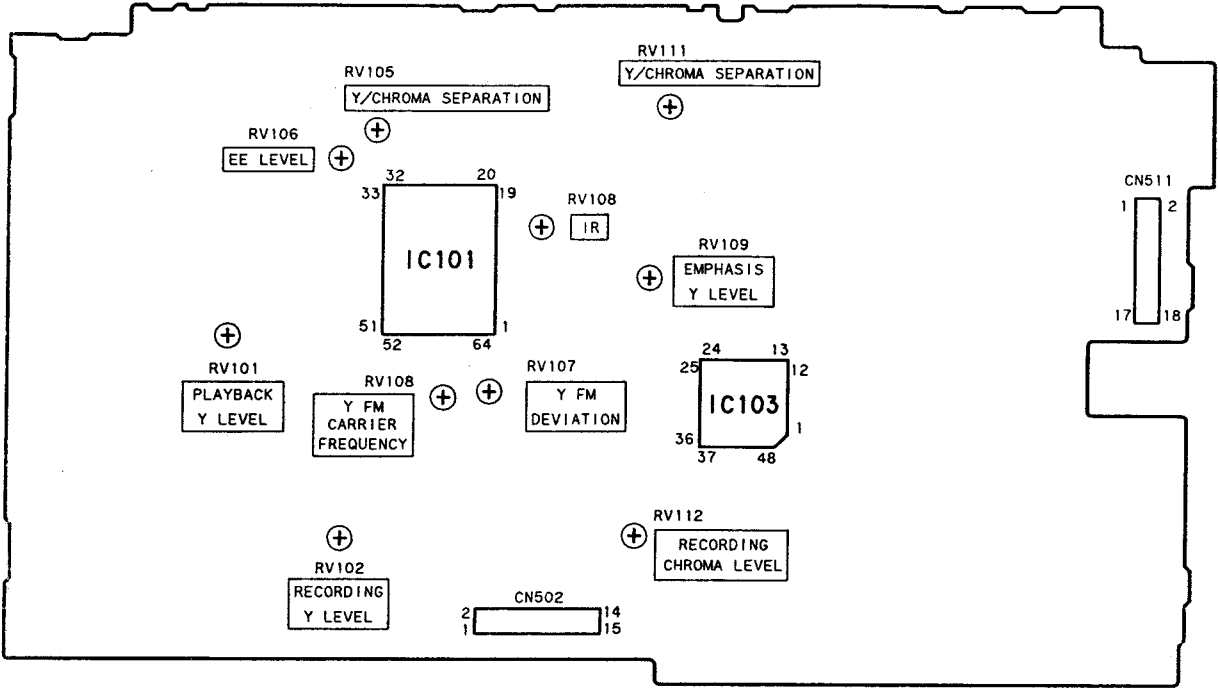


Fig. 10-23.

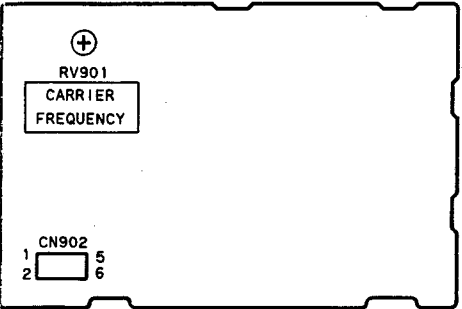
10-8. ADJUSTING PARTS LOCATION DIAGRAM

VI-111 BOARD (COMPONENT SIDE)

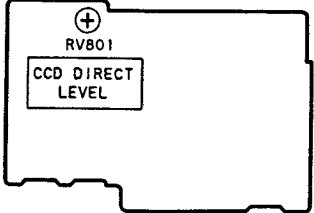


SS-144

AU-127 BOARD (COMPONENT SIDE)

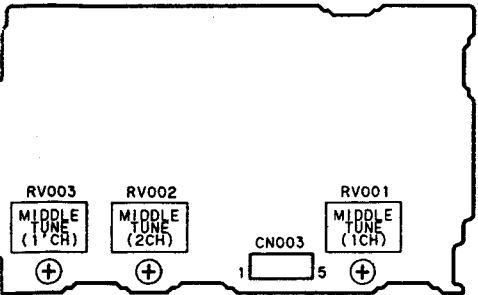


NJ-4 BOARD (COMPONENT SIDE)

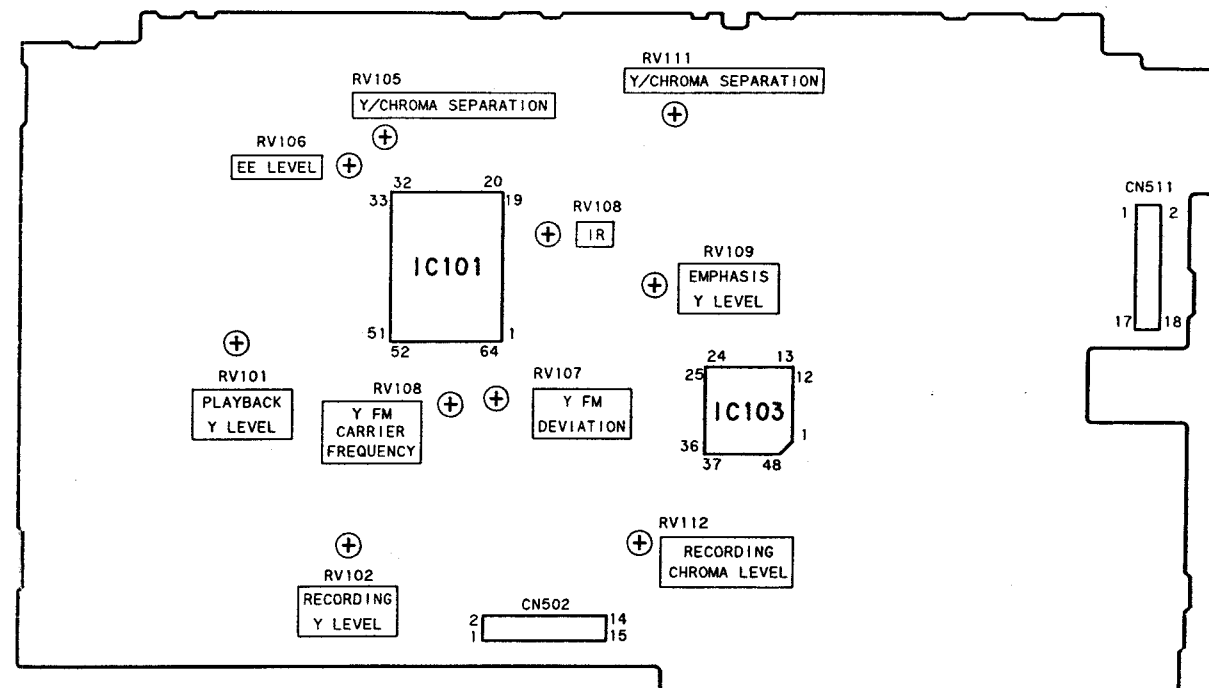


LC-38  
(COMP)

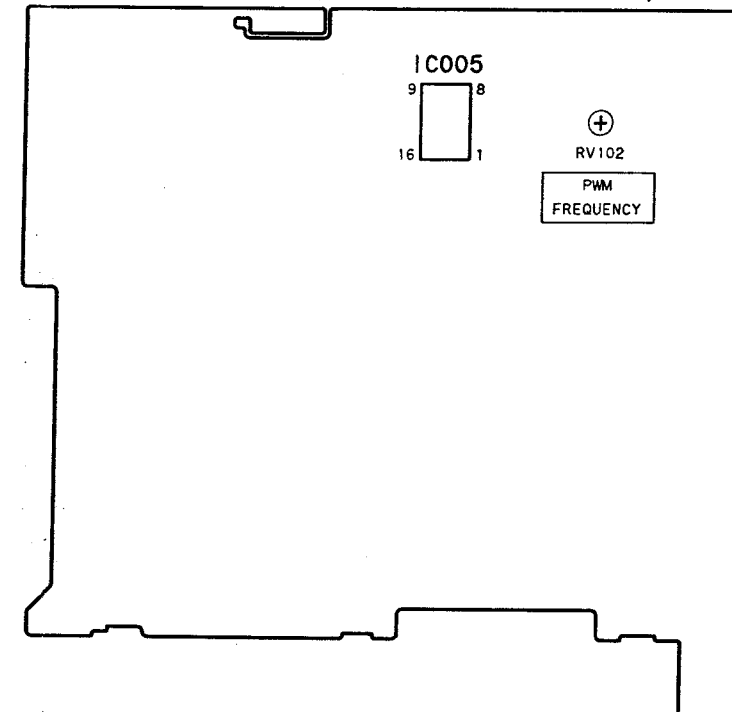
RP-134 BOARD (COMPONENT SIDE)



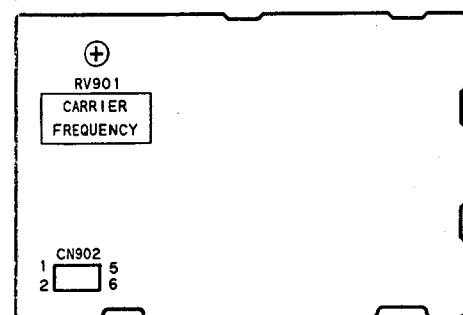
## VI-111 BOARD (COMPONENT SIDE)



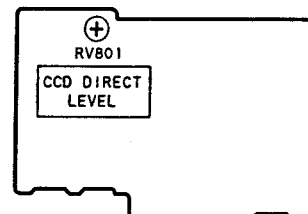
SS-144 BOARD (COMPONENT SIDE)



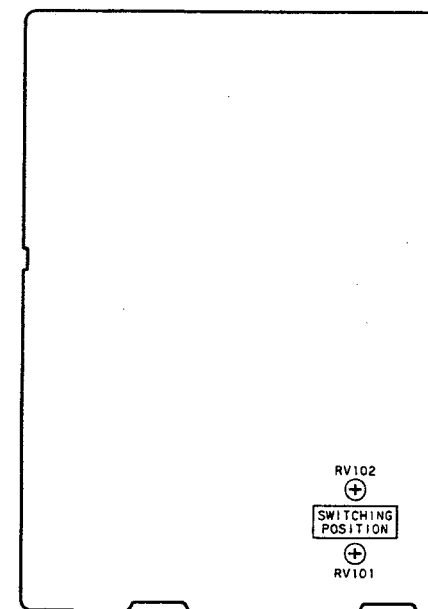
AU-127 BOARD (COMPONENT SIDE)



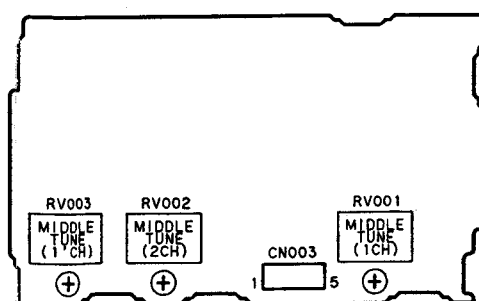
NJ-4 BOARD (COMPONENT SIDE)



LC-38 BOARD  
(COMPONENT SIDE)



RP-134 BOARD (COMPONENT SIDE)







**EV-C40**  
RMT-V124A

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**Sony Corporation**  
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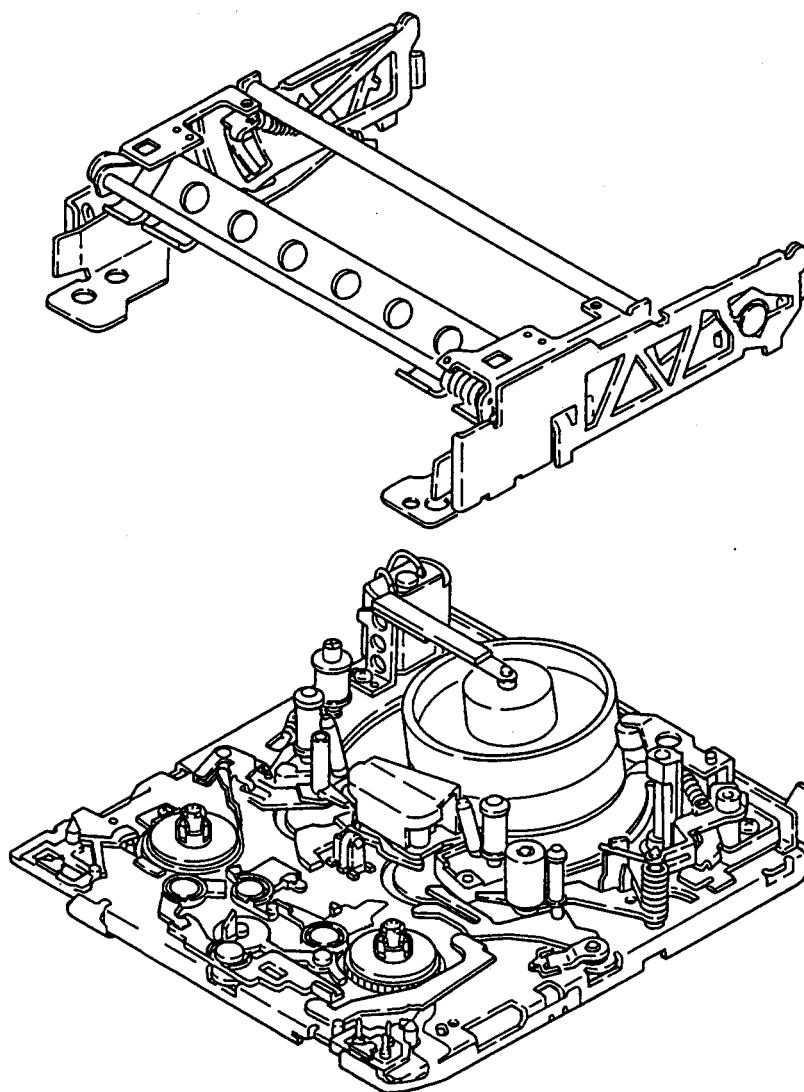
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# 8mm Video MECHANICAL ADJUSTMENT MANUAL III

## U MECHANISM

Please use in conjunction with the SERVICE MANUAL

# Video 8



**8** MECHANISM DECK  
**SONY**®

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## 1. PREPARATIONS FOR MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

**Note:** For removal of the cabinet, the boards, the cassette compartment, etc., refer to the service guides.

### 1-1. OPERATION WITHOUT CASSETTE COMPARTMENT ASSEMBLY AND TAPE

**Note:** The unit will not work if exposed to a strong light.

#### 1-1-1. How to Trigger the Loading Operation (See Fig. 1-1.)

- 1) Supply power to the unit after removing the cabinet, the camera block, the cassette compartment assembly, etc., as indicated in the service guides. (This will enable operation of the mechanical deck.)
- 2) Cover the LED assembly with an opaque cap, etc. ①.
- 3) Attach a piece of tape to the RECOG switch ② so that the pin is held down.
- 4) Push the EJECT lever ③ in the direction of the arrow ④.

#### 1-1-2. Setting the Playback Mode (See Fig. 1-1.)

- 1) Follow the procedures in section 1-1-1. above.
- 2) Put the rubber band ⑤ around the S and T reels.
- 3) Press the PLAY switch of unit, then push the tension regulator arm assembly ⑥ in the direction of the arrow ⑦ when the T reel starts to rotate (the tension regulator band will be released, and the S reel will start rotating).
- 4) To stop operation, press the STOP switch.

#### 1-1-3. Eject Operation (See Fig. 1-1.)

- 1) To eject, turn the EJECT switch on.

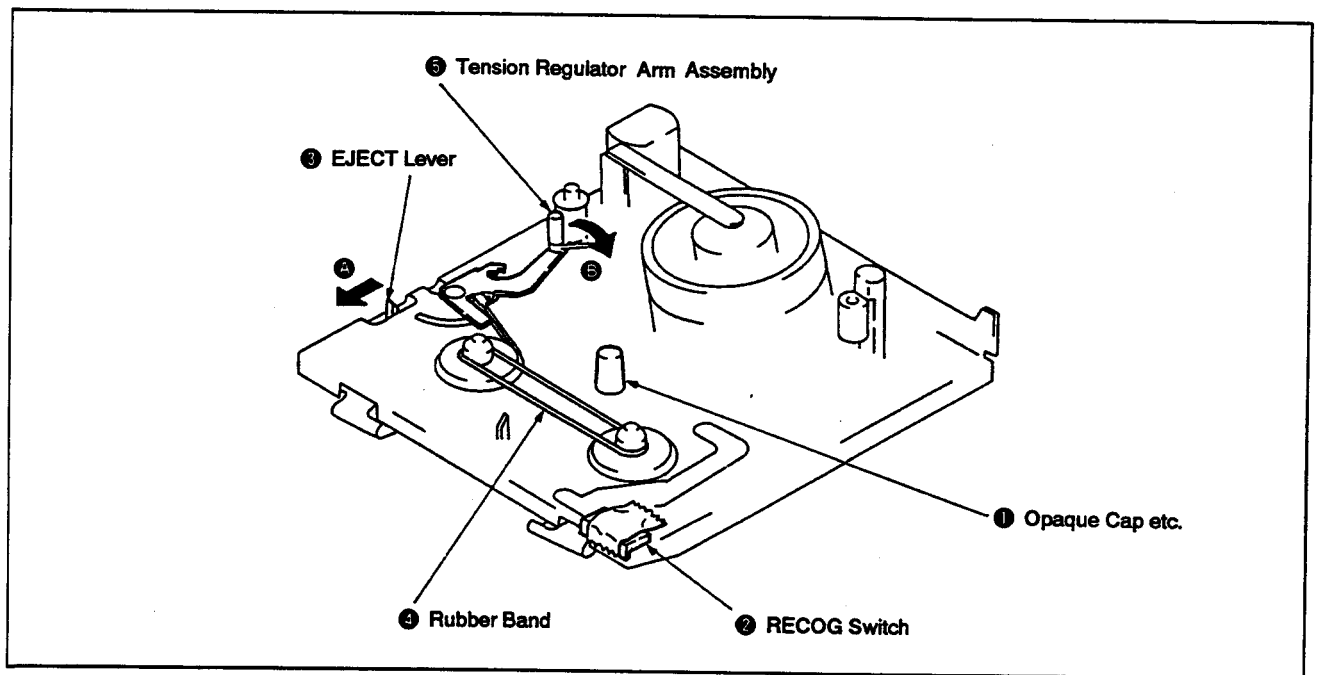


Fig. 1-1.

## 1-2. THE MODE SELECTOR

### 1-2-1. Name of Each Part (external) (See Fig. 1-2.)

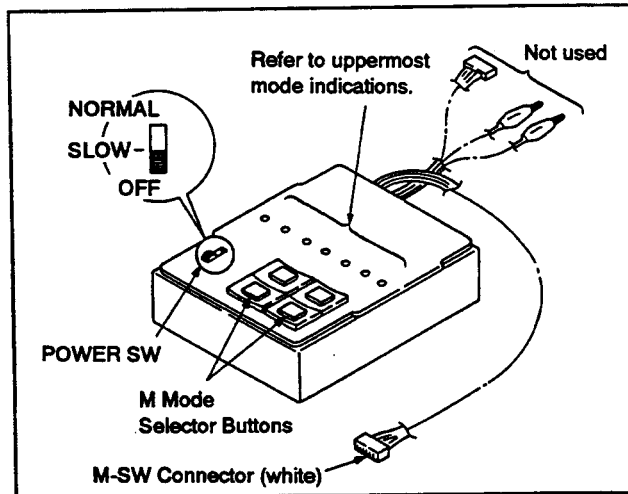


Fig. 1-2.

### 1-2-2. Connections (See Fig. 1-3.)

- 1) Mount the MODE SELECTOR III panel (Ref. No. J-9) ① onto the mode selector.
- 2) Attach the conversion connector (Ref. No. J-8) ③ of MODE SELECTOR III to the 6-pin connector (white) ② of the mode selector M-SW.
- 3) Remove the FP-89 flexible board ⑤ from the flexible connector ④.
- 4) Attach the FP-89 flexible board ⑤ to the flexible connector ⑥ of the MODE SELECTOR III conversion connector ③, then attach the 2-pin connector (white) ⑧ of the loading motor to the 2-pin connector (white) ⑦.

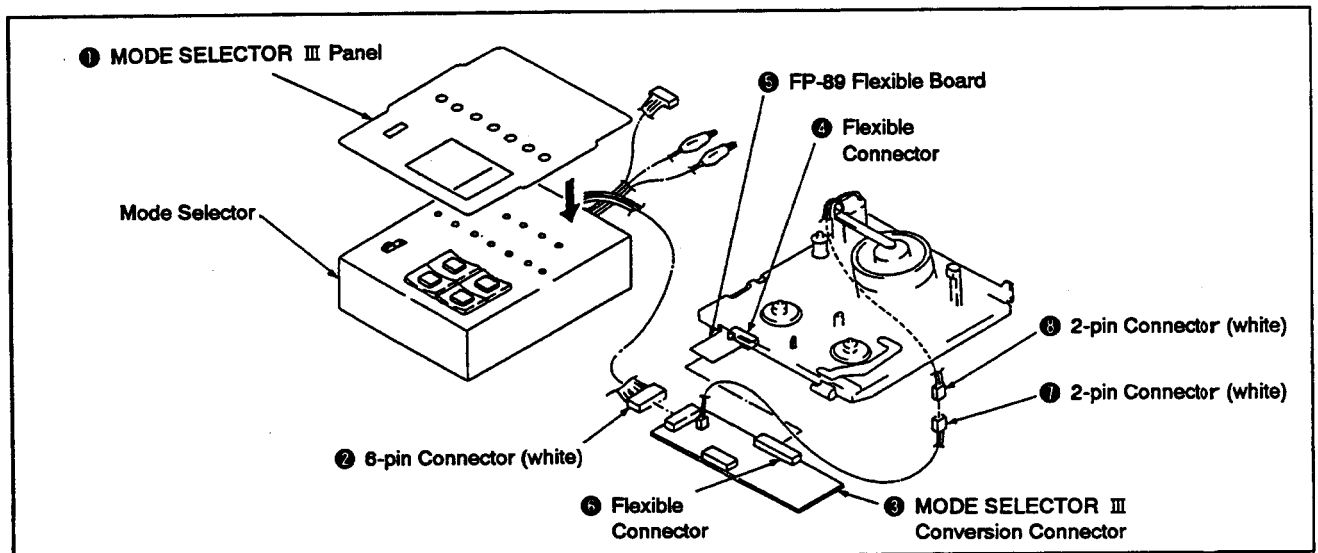


Fig. 1-3.

### 1-2-3. Handling (See Figs. 1-2. and 1-4.)

- Use only the M mode selector buttons.
- Refer to mode indications on the uppermost part of the MODE SELECTOR III panel.
- If the right M mode selector button is kept pressed, the lit indication will change in the order of EJECT → (IA) → ULD → (IB) → STOP → (IC) → FWD.
- To change modes in the reverse direction (from FWD to EJECT), press the left selector button.

**Note:** For this U mechanism, the uppermost indicators on the MODE SELECTOR III panel are used. The IA, IB and IC indications light up during mode changes.

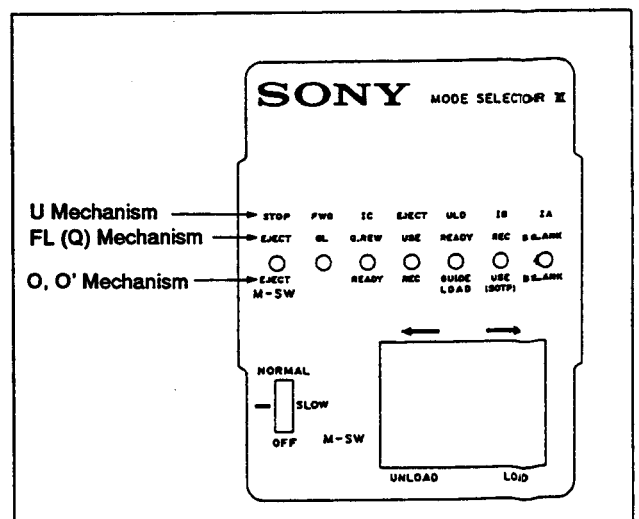


Fig. 1-4.



## 2. PERIODICAL CHECK AND MAINTENANCE (See Fig. 2-1.)

The following periodical check and maintenance procedures are necessary to ensure proper operation and to protect the tapes as well as the unit, and the following maintenance procedures must be always carried out after repairing regardless of how long the unit has been used.

### 2-1. ROTARY DRUM ASSEMBLY CLEANING

- 1) While pressing a piece of chamois leather (Ref. No. J-2) moistened in cleaning fluid (Ref. No. J-1) lightly against the rotary drum, turn the rotary upper drum slowly counter-clockwise with your fingers.

**Note:** Do not drive the drum with the motor, and do not turn it clockwise.

Do not move the chamois leather vertically against the head tip; this can damage the head tip. Strictly follow the cleaning instructions above.

### 2-2. TAPE PATH CLEANING

- 1) Set the cassette compartment assembly to the eject state, or remove it. Then clean the tape path (guides No. 1 to 7, capstan shaft, pinch rollers) with a piece of chamois leather moistened in cleaning fluid (See Fig. 2-1).

### 2-3. DRIVE SYSTEM CLEANING

- 1) Clean the drive system (timing belt, reel table surface) with a piece of cloth moistened in cleaning fluid.

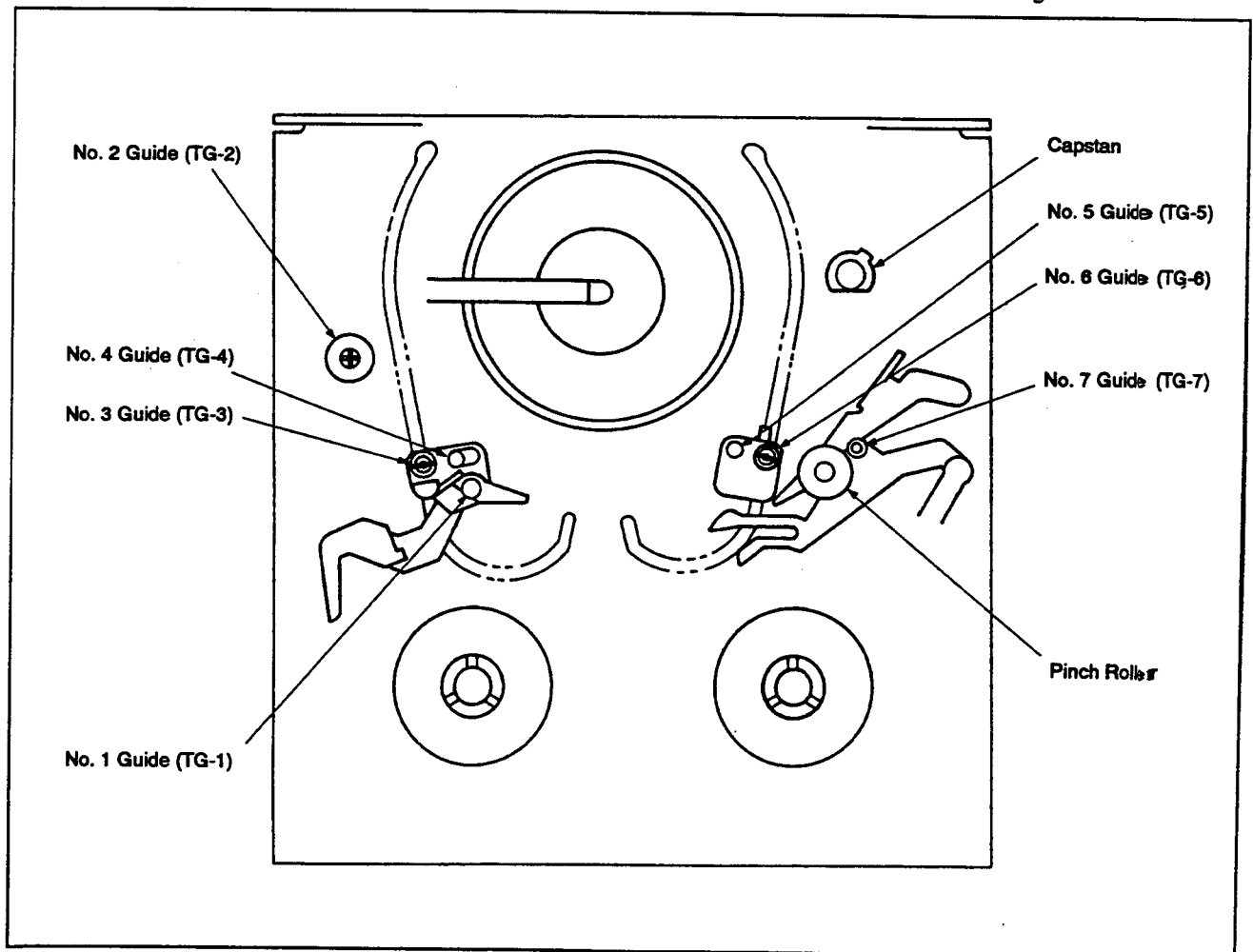


Fig. 2-1.

## 2-4. PERIODICAL CHECK ITEMS

○ Cleaning ◎ Lubrication ☆ Check

Maintenance and Check Item		Operation time (H)										Remarks
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Cleaning and Demagnetizing	Tape path surfaces Cleaning	○	○	○	○	○	○	○	○	○	○	Do not oil.
	Rotary drum assembly cleaning and demagnetizing	○	○	○	○	○	○	○	○	○	○	Do not oil.
Drive System	Relay belt (short)	-	☆	-	☆	-	☆	-	☆	-	☆	3-728-866-01
	Relay belt (long)	-	☆	-	☆	-	☆	-	☆	-	☆	3-728-865-01
	Capstan shaft	-	◎	-	◎	-	◎	-	◎	-	◎	Take care that no oil gets on tape path surfaces.
	Idler pulley axle	-	◎	-	◎	-	◎	-	◎	-	◎	
	Loading motor	-	☆	-	☆	-	☆	-	☆	-	☆	1-541-612-11
Performance Check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	-	☆	-	☆	-	☆	-	☆	-	☆	
	Brake system	-	☆	-	☆	-	☆	-	☆	-	☆	
	FWD, RVS torque measurement	-	☆	-	☆	-	☆	-	☆	-	☆	

**Notes:** When overhauling the unit, perform parts replacement referring to the table above.

Regarding Oil:

- Always use the specified oil (using oil of different viscosity, etc. can cause troubles of several kinds).  
Specified oil: Part No. 7-661-018-01  
(Mitsubishi Diamond Oil Hydrofluid EP56)
- Be sure that no dirt is mixed in the oil to be used on axle bearings. Use of dirty oil can result in bearing wear and burning.
- By "one drop of oil" is meant the quantity of oil adhering to the end of a 2mm-diameter rod as shown in Fig. 2-2.

On grease:

- Use the specified grease.  
Grease: Part No. 7-662-010-08  
(Sony grease SGL-701)

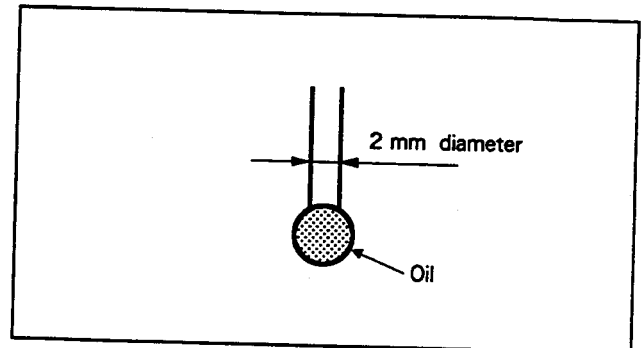
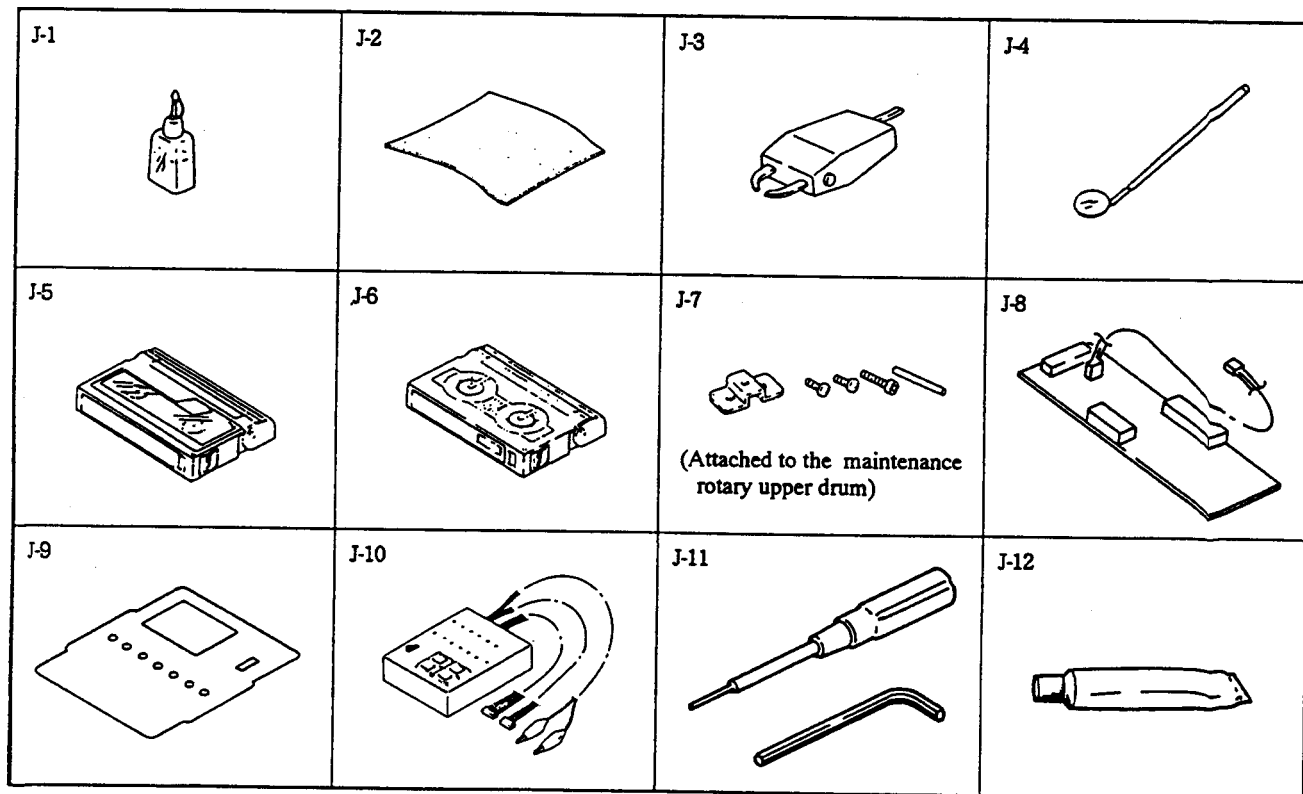


Fig. 2-2.

## 2-5. SERVICING TOOLS

Ref. No.	Name	Part Code	Marking	Application, etc.
J-1	Cleaning fluid	Y-2031-001-0	—	
J-2	Chamois cloth	2-034-697-00	—	
J-3	Head demagnetizer	Commercially available	—	
J-4	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	Alignment tape NTSC (WR5-1N) PAL (WR5-1C)	8-967-995-01 8-967-995-06		Tape path
J-6	FWD/RVS takeup torque cassette	J-6080-824-A	GD-2086	
J-7	Rotary drum jig	(Attached to the maintenance rotary upper drum)		
J-8	Mode selector III conversion connector	J-6082-021-A		General
J-9	Mode selector III panel	J-6082-023-A		General
J-10	Mode selector	J-6080-825-A		General
J-11	Hexagonal wrench detection (0.89 mm) or L wrench (0.89 mm)	7-700-766-01 7-700-736-06		Tape path
J-12	Sony grease (SGL-701)	7-662-010-08		

Other devices: Oscilloscope  
Analog tester (20 k $\Omega$ )



### 3. MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

- Notes:**
- Use the mode selector (Ref. No. J-10) for procedures in this chapter.
  - Modes within a frame ☐ are those set by pressing the buttons of the mode selector.

#### 3-1. HC ROLLER ASSEMBLY

##### 1. Removal (See Fig. 3-1.)

- 1) Remove the screw ①, then remove the HC roller assembly ②.

##### 2. Installation (See Fig. 3-1.)

- 1) Align the two dowels ③ attached to the HC roller assembly ② with the two holes ④ in the mechanism chassis.
- 2) Secure the HC roller assembly ② with the screw ①.

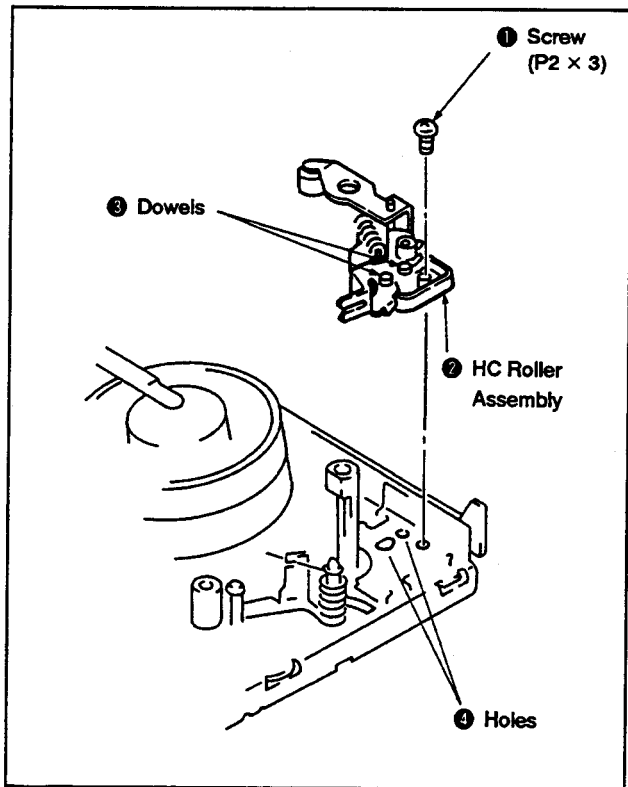


Fig. 3-1.

#### 3-2. GUIDE GUARD ASSEMBLY

##### 1. Removal (See Fig. 3-2.)

- Remove the screw ①, then remove the guide guard assembly ②.

##### 2. Installation (See Fig. 3-2.)

- 1) Align the dowel ③ attached to the guide guard assembly ② with the hole ④.
- 2) Secure the guide guard assembly ② with the screw ①.

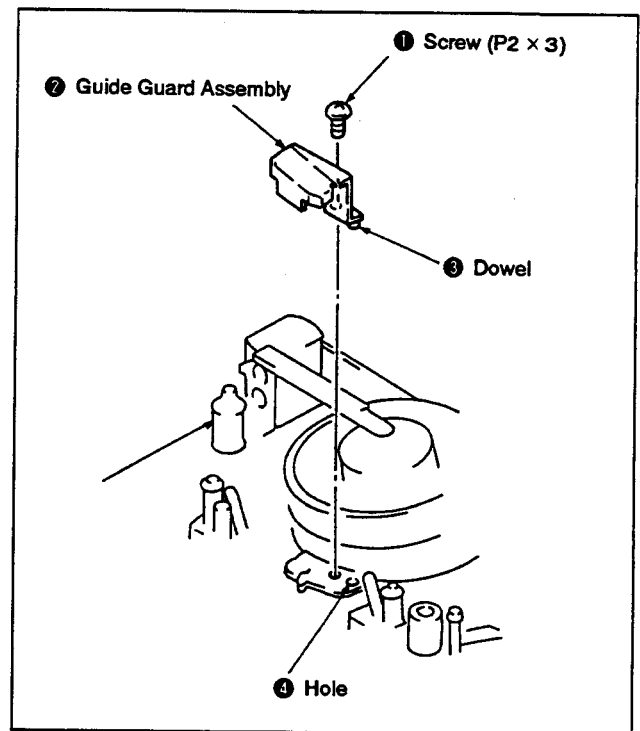


Fig. 3-2.

### 3-3. DC MOTOR (CAPSTAN MOTOR) ASSEMBLY

#### 1. Removal (See Fig. 3-3.)

- 1) Set the ULD mode.
- 2) Turn the stopper ① in the direction of the arrow A as far as it will go.
- 3) Remove the two screws ②, then remove the DC motor ③.

#### 2. Installation (See Fig. 3-3.)

- 1) Align the two screwed dowels ④ with the two holes ⑤, then engage the toothed part ⑥ with the connecting gear ⑦.
- 2) Secure the DC motor assembly ③ with the two screws ②.
- 3) Turn the stopper ① in the direction of the arrow B as far as it will go.

**Note:**

- When engaging the gears, take care not to damage their teeth.
- Do not leave any clearance between the DC motor ③ and the chassis.
- Do not touch the capstan motor axle\*, the oil seal\* and the rotor\*.

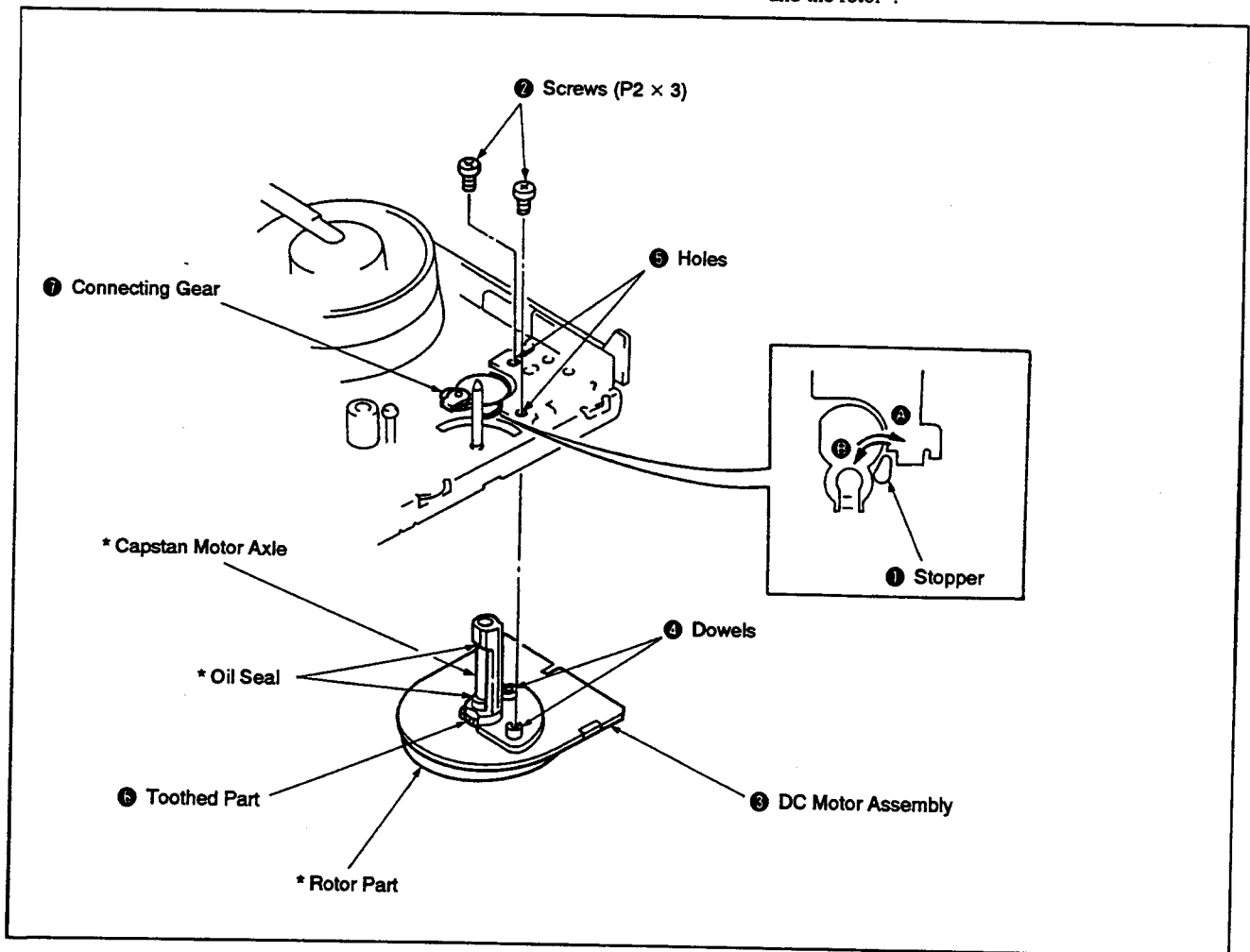


Fig. 3-3.

### 3-4. S BRAKE, T BRAKE

#### 1. Removal (See Fig. 3-4.)

- 1) Remove the torsion coil spring (ST) ①.
- 2) Remove the axle holding pin ②, then remove the T brake ③.
- 3) Remove the axle holding pin ④, then remove the S brake ⑤.

#### 2. Installation (See Fig. 3-4.)

- 1) While fitting the toothed part ⑥ into the notch ⑦, mount the S brake ⑤.
- 2) Insert the axle holding pin ④.
- 3) Insert the axle ⑧ to the S reel side of the brake release arm ⑨ so that the A part comes closer to the drum than part B, and mount the T brake ③.
- 4) Insert the axle holding pin ②.
- 5) Insert the torsion coil spring (ST) ① below the claw ⑪ of the axle ⑩, then hook it to two claws ⑫.

**Note:** Confirm that the claws of axle holding pins ② and ④ are not broken before assembling.

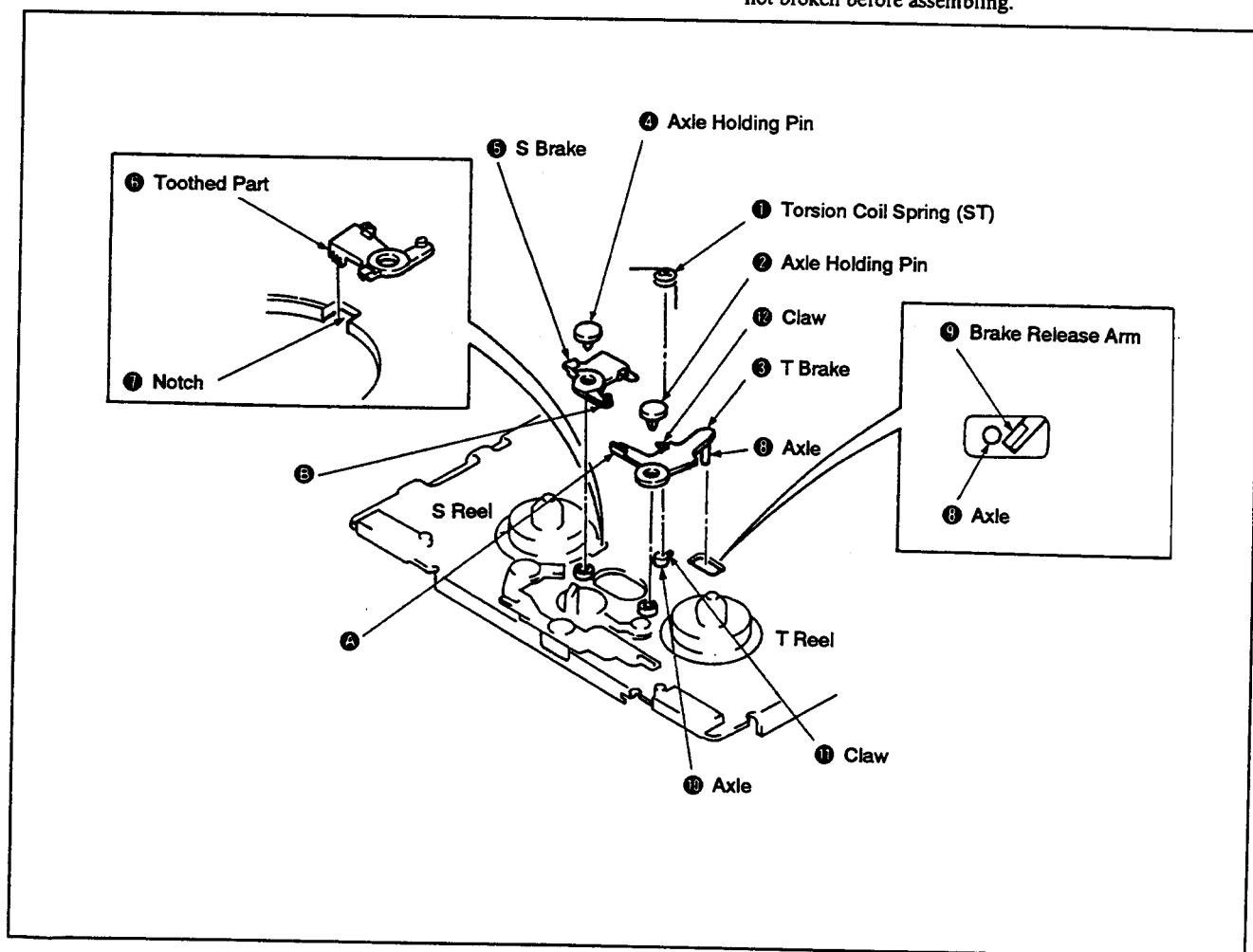


Fig. 3-4.



### 3-5. LB BRAKE, AXLE HOLDING PINS

#### 1. Removal (See Fig. 3-5.)

- 1) Remove the screw ❶, then remove the TL holding plate ❷.
- 2) Remove the axle holding pin ❸, then remove the LB brake ❹.
- 3) Remove the axle holding pin ❺, then remove the LB lever ❻.

#### 2. Installation (See Fig. 3-5.)

- 1) Mount the LB lever ❻ matching it to pin ❷ of the LB gear, then secure it with the axle holding pin ❺.
- 2) Insert the pin ❸ into the notch ❹ of the LB lever ❻, then mount the LB brake ❹ while inserting the toothed part ❶ into the notch ❶.
- 3) Insert the axle holding pin ❸.
- 4) Align the dowel ❷ with the hole ❶, then mount the TL holding plate and secure it with the screw ❶.

**Note:** Confirm that the claws of axle holding pins ❸ and ❺ are not broken before assembling.

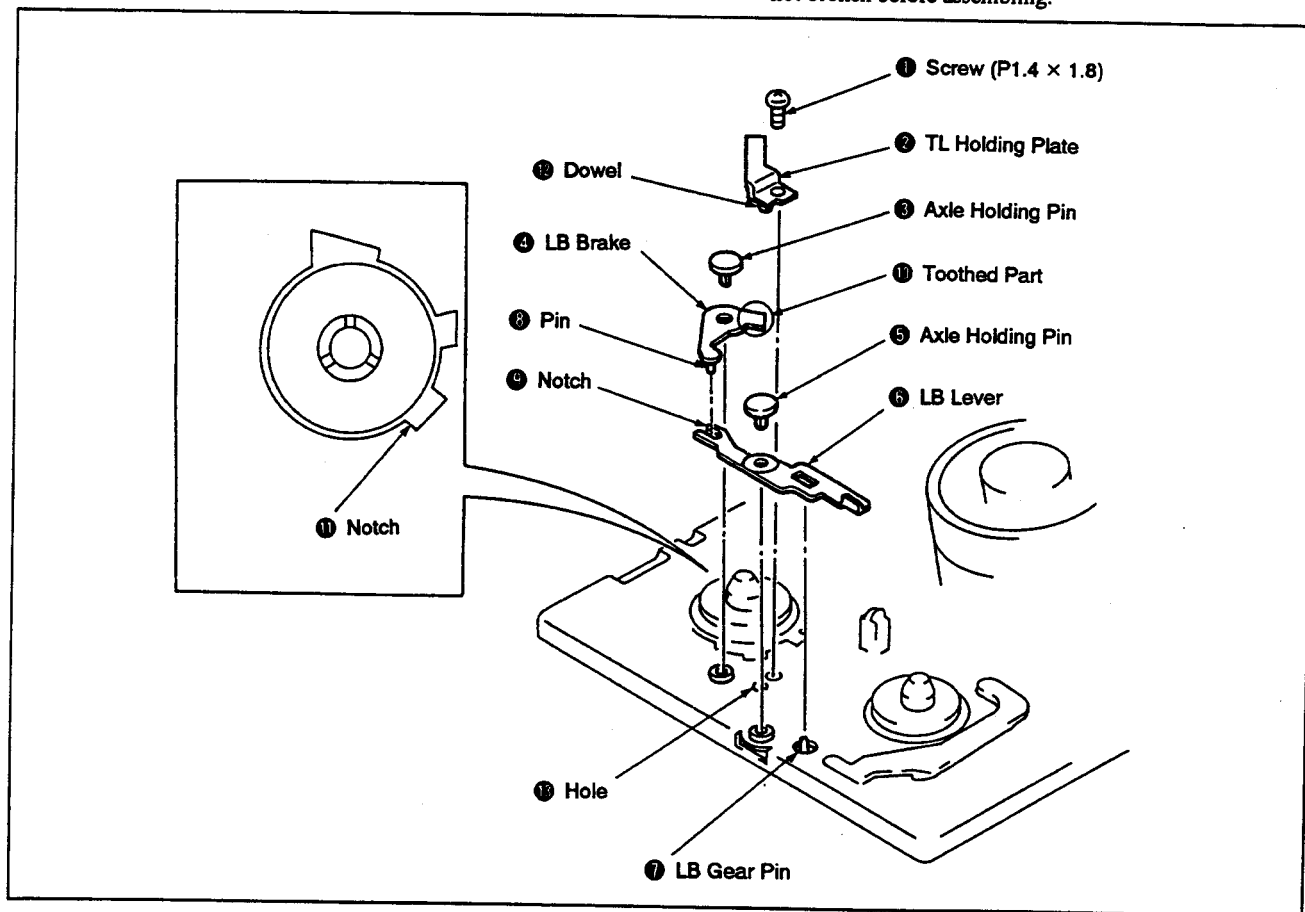


Fig. 3-5.

### 3-6. LB RELEASE ARM

#### 1. Removal (See Fig. 3-6.)

- 1) While pushing the claw ① in the direction of the arrow, remove the LB release arm ②.

#### 2. Installation (See Fig. 3-6.)

- 1) Fit the LB release arm ② to the axle ③, insert protrusions ④, ⑤, ⑥, ⑦ into the three holes ⑧, then secure with the claw ①.

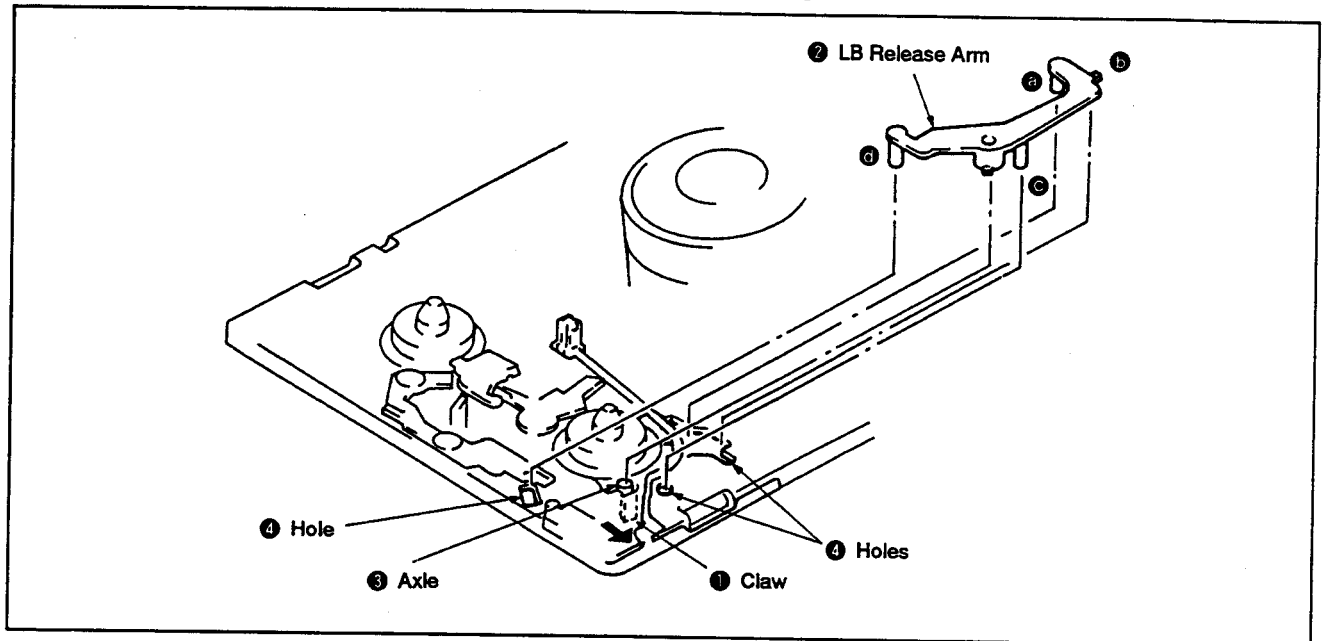


Fig. 3-6.

### 3-7. RK STOPPER, RK STOPPER ARMS

#### 1. Removal (See Fig. 3-7.)

- 1) Remove the torsion coil spring (RK) ①.
- 2) Open the chassis claw ②, then remove the RK stopper arm ③.
- 3) Remove the RK stopper ④.

#### 2. Installation (See Fig. 3-7.)

- 1) Mount the RK stopper ④ onto the axle ⑤.
- 2) Mount the RK stopper arm ③ onto the axle ⑥, insert Pin ⑩ into hole ⑪, then hook the claw ② of the chassis to the hole ⑦.
- 3) Insert the torsion coil spring (RK) ① into the axle ⑤, then hook it to claws ⑧ and ⑨.

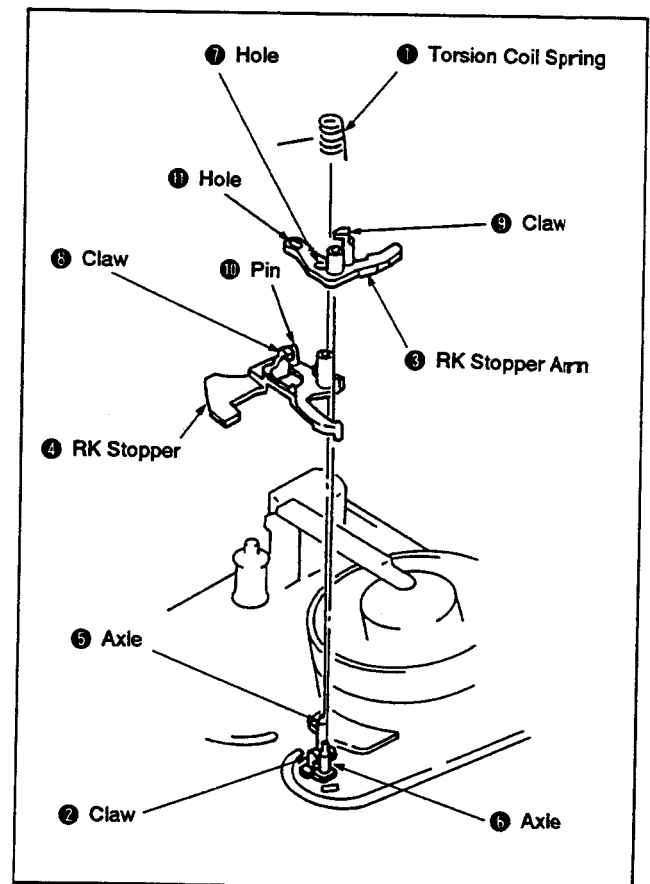


Fig. 3-7.

### 3-8. PINCH ARM ASSEMBLY, TG-7 ASSEMBLY

#### 1. Removal (See Fig. 3-8.)

- 1) Set the **[B]** mode.
- 2) Remove the stopper washer ①, then remove the pinch arm assembly ②.
- 3) Bend the claw ④ inside hole ③ in the direction of the arrow using a thin screwdriver or the like, then remove the TG-7 plate spring ⑤.
- 4) Remove the TG-7 arm assembly ⑥.

#### 2. Installation (See Fig. 3-8.)

- 1) Grease the inner surfaces of hole ⑦ (See Fig. A).
- 2) Insert the axle ⑧ of the TG-7 arm assembly ⑥ into the hole ⑦.
- 3) Grease the shaded section ⑨ (See Fig. A).
- 4) Insert the TG-7 plate spring ⑤ into the hole ③, then secure it with the claw ④.
- 5) Apply half a drop of oil to the axle ④ (See Fig. B).
- 6) Fit the pinch arm assembly ② to the axle ④ and insert the pinch roller sub arm assembly tab ⑩ into the ⑤ part.
- 7) Install the stopper washer ①.

**Note:**

- Take care not to grease the screw ⑪ of the TG-7 arm assembly ⑥ (See Fig. A).
- When fitting the pinch arm assembly ② to the axle ④, make sure that it does not touch the TG-7 guide ⑬ or the rubber roller ⑭.
- After assembling, be sure to perform tape path adjustment as described in section 4.

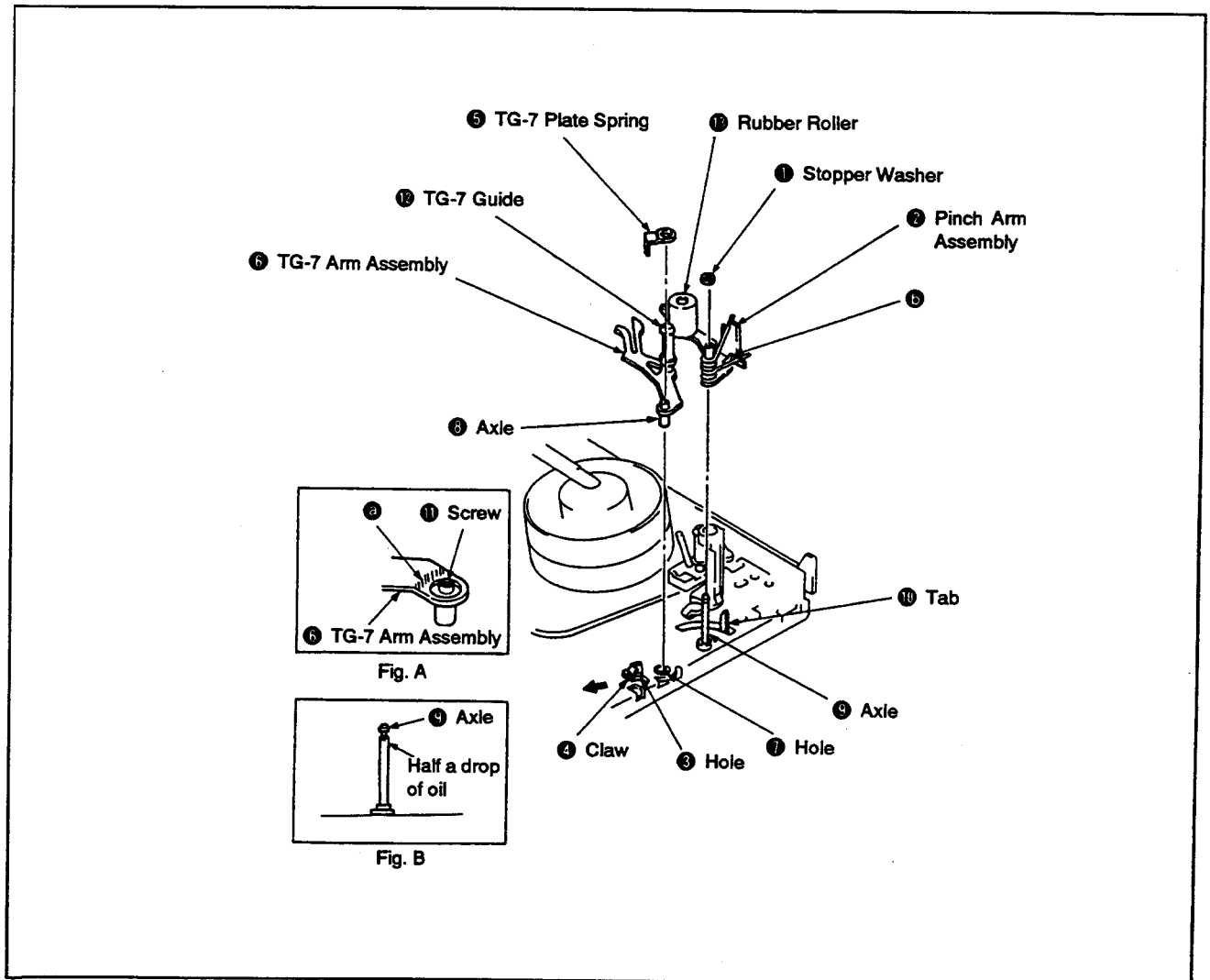


Fig. 3-8.

### 3-9. TG-2 ASSEMBLY

#### 1. Removal (See Fig. 3-9.)

- 1) Remove the TG-2 upper flange assembly ①.
- 2) Remove the TG-2 roller ②, the TG-2 sleeve ③, the TG-2 lower flange ④ and the compression spring ⑤.

#### 2. Installation (See Fig. 3-9.)

- 1) Mount the compression spring ⑤, the TG-2 lower flange ④, the TG-2 sleeve ③ and the TG-2 roller ② to the axle.
- 2) Secure the TG-2 upper flange ① to the axle by rotating it 4 to 6 turns.

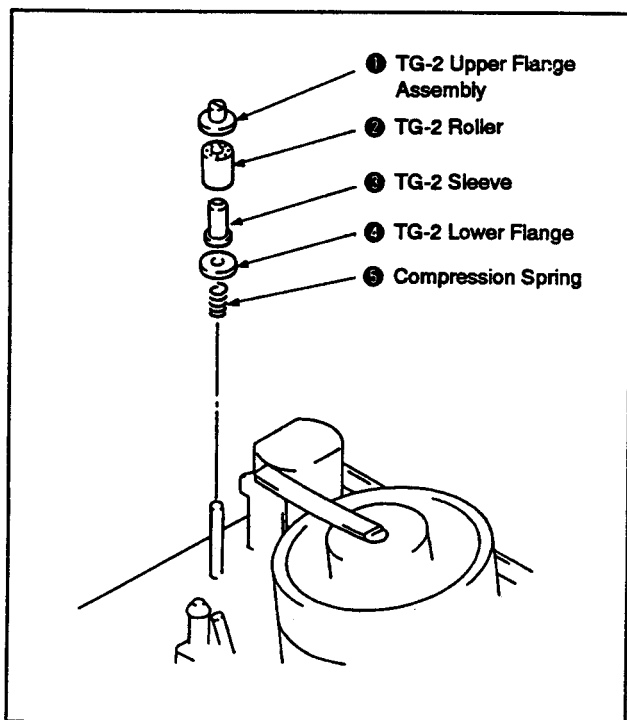


Fig. 3-9.

#### 3. TG-2 Height Preset (see Fig. 3-10.)

- 1) Adjust height from the mechanism chassis upper surface to the TG-2 upper flange ① upper surface to 18.6 mm by turning the TG-2 upper flange ①.

**Note:** After adjustment, be sure to perform tape path adjustment as described in section 4.

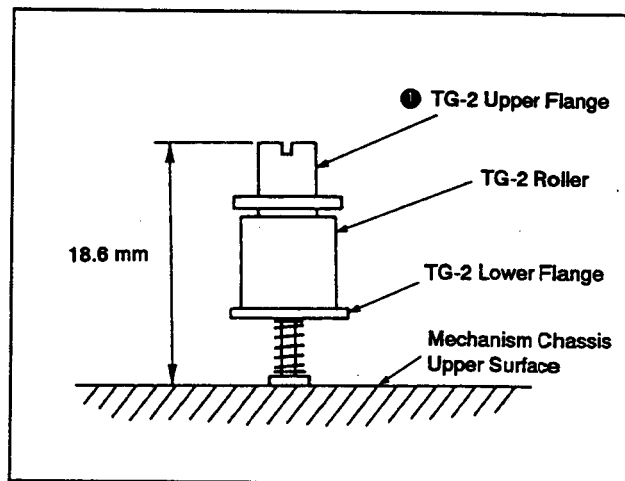


Fig. 3-10.

### 3-10. S REEL TABLE ASSEMBLY, T REEL TABLE ASSEMBLY

#### 1. Removal (See Fig. 3-11.)

- 1) Remove the S brake and T brake as described in section 3-4.
- 2) Remove the TL holding plate as described in section 3-5.
- 3) Remove the tension regulator band assembly as described in section 3-11.
- 4) Remove the S reel table assembly ①.
- 5) Turn the stopper ② approx. 90° in the direction of the arrow A.
- 6) While sliding the LB release arm ③ in the direction of the arrow E, remove the T reel table assembly ④.

#### 2. Installation (See Fig. 3-11.)

- 1) Apply half a drop of oil to the axle ⑤ (See Fig. A).
- 2) Move the RK gear ⑥ in the direction of the arrow C and the TS brake ⑦ in the direction of the arrow D, putting them out of the way.
- 3) While sliding the LB release arm ③ in the direction of the arrow E, mount the T reel table assembly ④ onto the axle ⑤, then turn the stopper ② in the direction of the arrow F as far as it will go.
- 4) Apply half a drop of oil to the axle ⑧ (See Fig. B).
- 5) Move the RK gear ⑥ in the direction of the arrow F, the UL brake ⑨ in the direction of the arrow G and the LB brake ⑩ in the direction of the arrow H, putting them out of the way.
- 6) Mount the S reel table ① onto the axle ⑧.
- 7) Mount the tension regulator band assembly as described in section 3-11.
- 8) Mount the TL holding plate as described in section 3-5.
- 9) Mount the S brake and T brake assemblies as described in section 3-4.

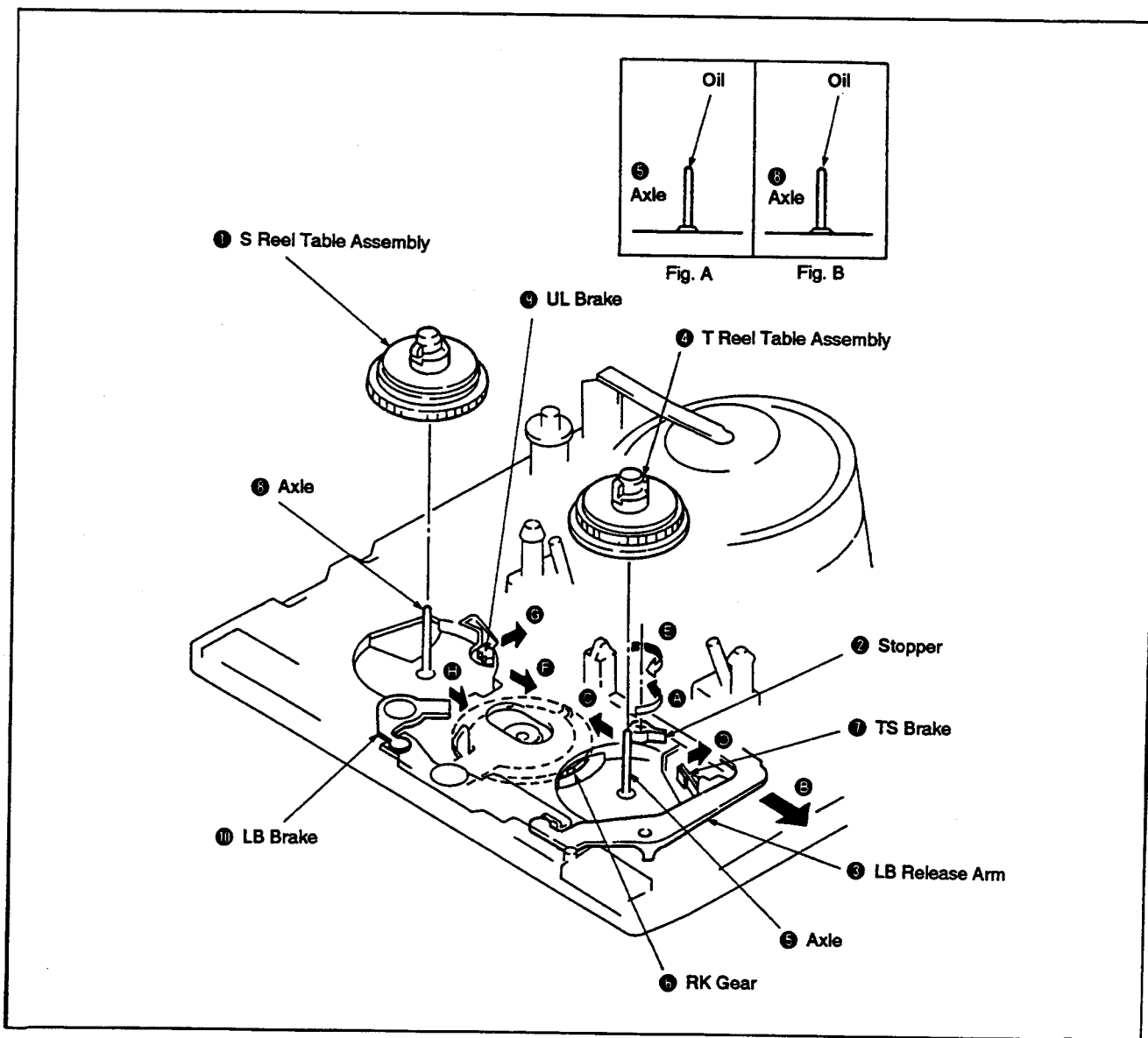


Fig. 3-11.

### 3-11. TENSION REGULATOR BAND ASSEMBLY, TENSION REGULATOR ARM ASSEMBLY

#### 1. Removal (See Fig. 3-12.)

- 1) Remove the TL holding plate as described in section 3-5.
- 2) Remove the screw ①.
- 3) Using a thin screwdriver or the like, remove the tension regulator band assembly ④ from the axle ③ of tension regulator arm assembly ②.
- 4) Remove the tension spring ⑤.
- 5) Remove the stopper washer ⑥ from the back of the mechanism chassis, then remove the tension regulator arm assembly ②.
- 6) Open the claw ⑦, then remove the adjust arm ⑧.

**Note:** When removing the tension regulator band assembly ④, take care not to twist or bend it, and not to touch the felt surface ⑨.

#### 2. Installation (See Fig. 3-12.)

- 1) Engage the adjust arm ⑧ in the position shown in Fig. A, then close the claw ⑦.
- 2) Apply half a drop of oil to the hole ⑩.
- 3) Mount the tension regulator arm assembly ②, then insert it into the slot ⑪ so that the ② part comes to the arrow A side of the switch lever assembly (See Fig. B).

- 4) While holding the tension regulator arm assembly ② from the mechanism chassis front, secure it with the stopper washer ⑥ from the back.
- 5) Hook the R hook of the tension spring ⑤ to the adjust arm ⑧ as shown in the figure, then hook the opposite end to the tension regulator arm assembly ②.
- 6) Mount the tension regulator band assembly ④ onto the axle ③ of tension regulator arm assembly ②, and place it so that the felt surface ⑨ comes against the shaded portion of the S reel table assembly ⑫.
- 7) Mount the tension regulator plate ⑬ of the tension regulator band assembly ④ so that it is aligned with the dowel ⑭ of the mechanism chassis, then secure it temporarily with the screw ①.
- 8) Mount the TL holding plate as described in section 3-5.
- 9) Adjust tension regulator FWD position as described in section 3-12.
- 10) Perform adjust arm adjustment as described in section 3-22.

**Note:** When mounting the tension regulator band assembly ②, take care not to twist or bend it, and not to touch the felt surface ⑨.

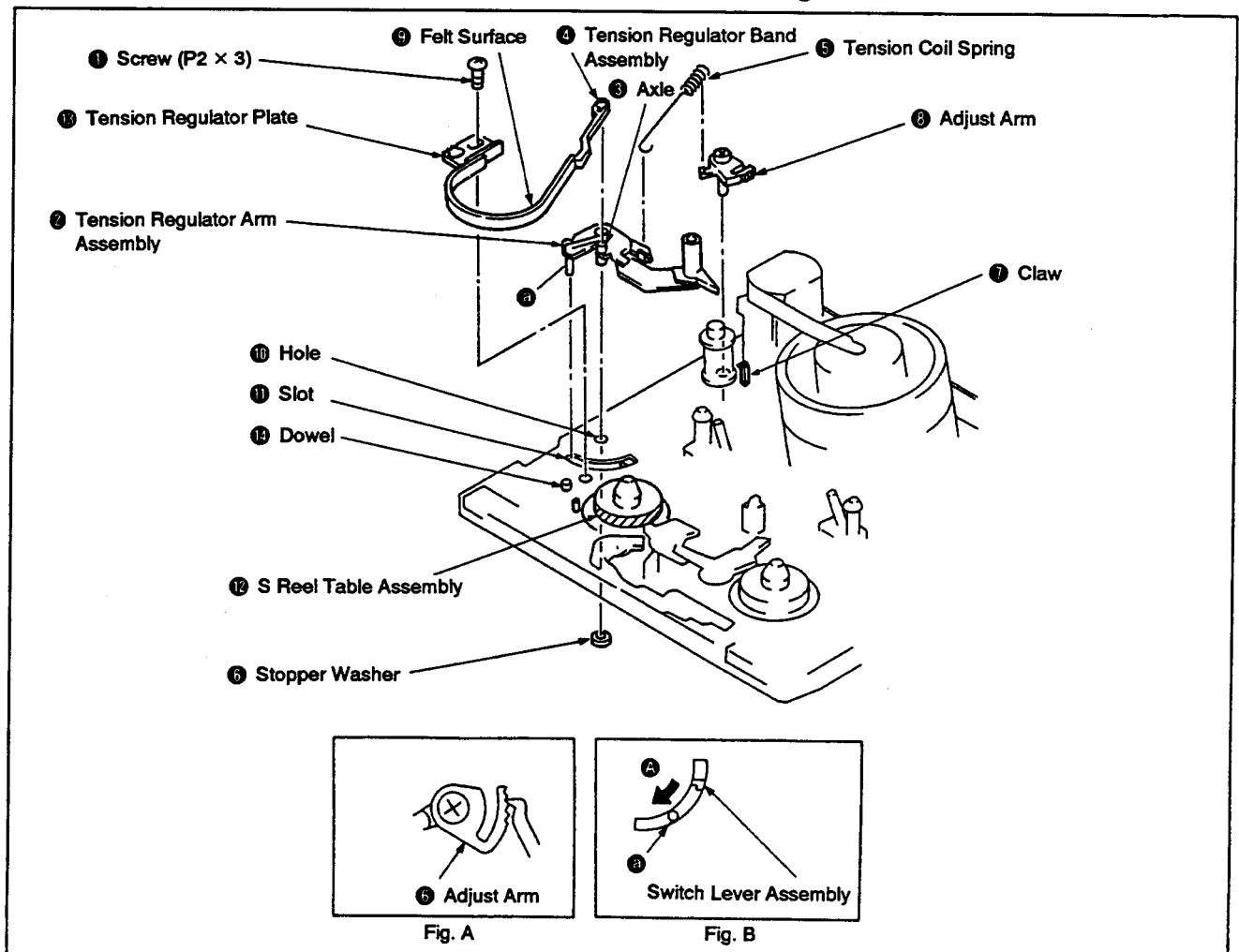


Fig. 3-12.



### 3-12. TENSION REGULATOR FWD POSITION PRESET (See Fig. 3-13.)

- 1) Load a cassette tape and set the **FWD** mode.
- 2) Confirm whether the distance between ② part of the tension regulator arm ① and the groove ② of the chassis is  $1.1 \pm 0.3$  mm. If this distance is not within the specified range, remove the cassette tape and perform the following adjustment.
- 3) Loosen the fixing screw ④ of the tension regulator band assembly ③.
- 4) Slide the tension regulator plate ⑤ in the direction of the arrow **A** if the measured distance is over the specified range, and in the direction of the arrow **B** if it is under that range. Then, fix it with the screw ④.
- 5) Repeat steps 1) and 2) and confirm that the distance is within the specified range.

**Note:** Use a cassette with the tape advanced halfway.

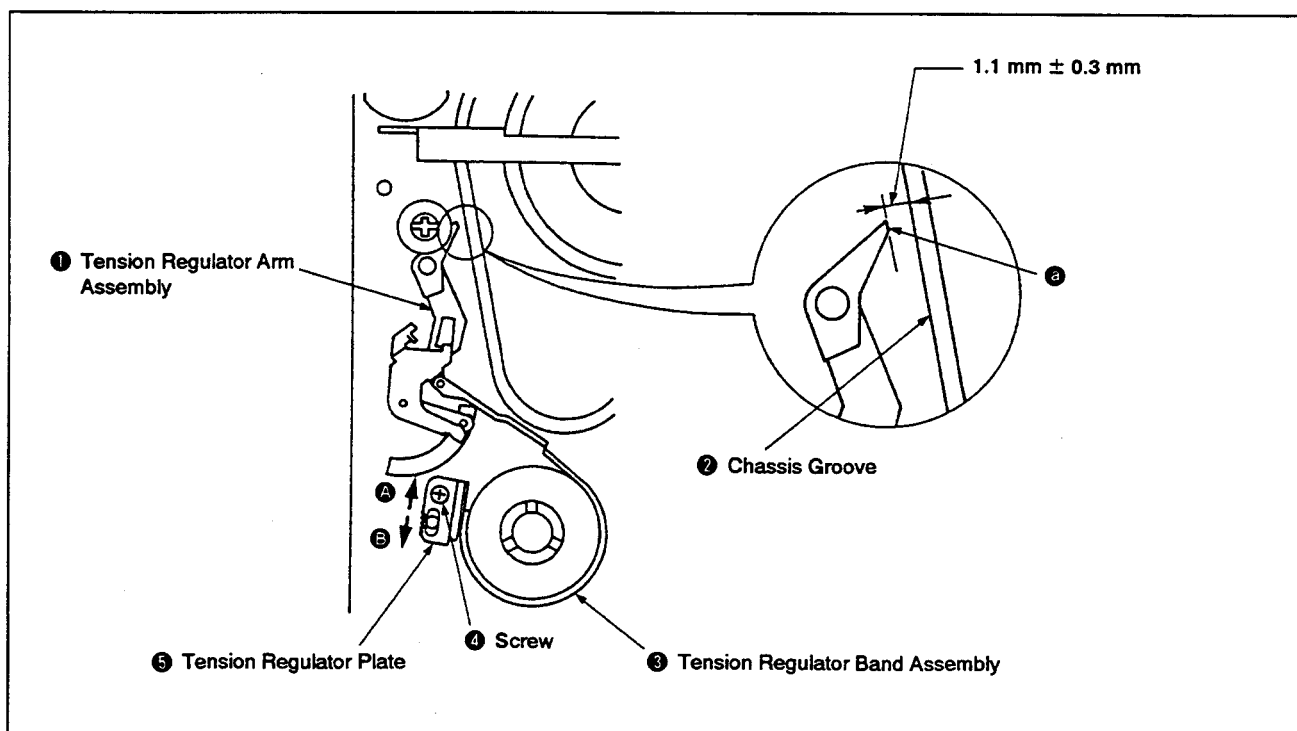


Fig. 3-13.

### 3-13. DRUM ASSEMBLY, DEW SENSOR

#### 1. Removal (See Fig. 3-14.)

- 1) Set the **EJECT** mode.
- 2) Remove the flexible board ① and the two connectors ②.
- 3) Remove the guide guard assembly as described in section 3-2.
- 4) Remove the screw ③, then remove the axle ground terminal ④.
- 5) Remove the three screws ⑤, then remove the drum assembly ⑥ from the mechanism chassis.
- 6) Remove the connector ⑩.
- 7) Remove the screw ⑦, then remove the dew sensor ⑧.

**Note:**

- When removing the drum assembly ⑥ from the mechanism chassis, take care not to cut the flexible board ① or the harness.
- Take care not to touch the head tip ⑨.

#### 2. Installation (See Fig. 3-14.)

- 1) Insert part ④ of the dew sensor ⑧ into the notch ⑪ of the mechanism chassis, then secure it with the screw ⑦.
- 2) Mount the connector ⑩.
- 3) Clamp the harness ⑮ of the dew sensor ⑧ with the reinforcing the claw ⑯ of the plate SS assembly (See Fig. A).
- 4) Insert the connector ② and the flexible board ① into the hole ⑫ of the mechanism chassis, align the drum assembly ⑥ with the two dowels ⑬ and secure it with the three screws ⑤.
- 5) Align the axle ground terminal ② with the two dowels ⑭ of the mechanism chassis and secure it with the screw ③.
- 6) Mount the guide guard assembly as described in section 3-2.
- 7) Mount the two connectors ② and the flexible board ①.

**Note:**

- Take care not to cut the flexible board ① or the harness ⑮.
- Take care not to touch the head tip ⑨.
- After assembling, be sure to perform Tape Path Adjustment following instructions in section 4.

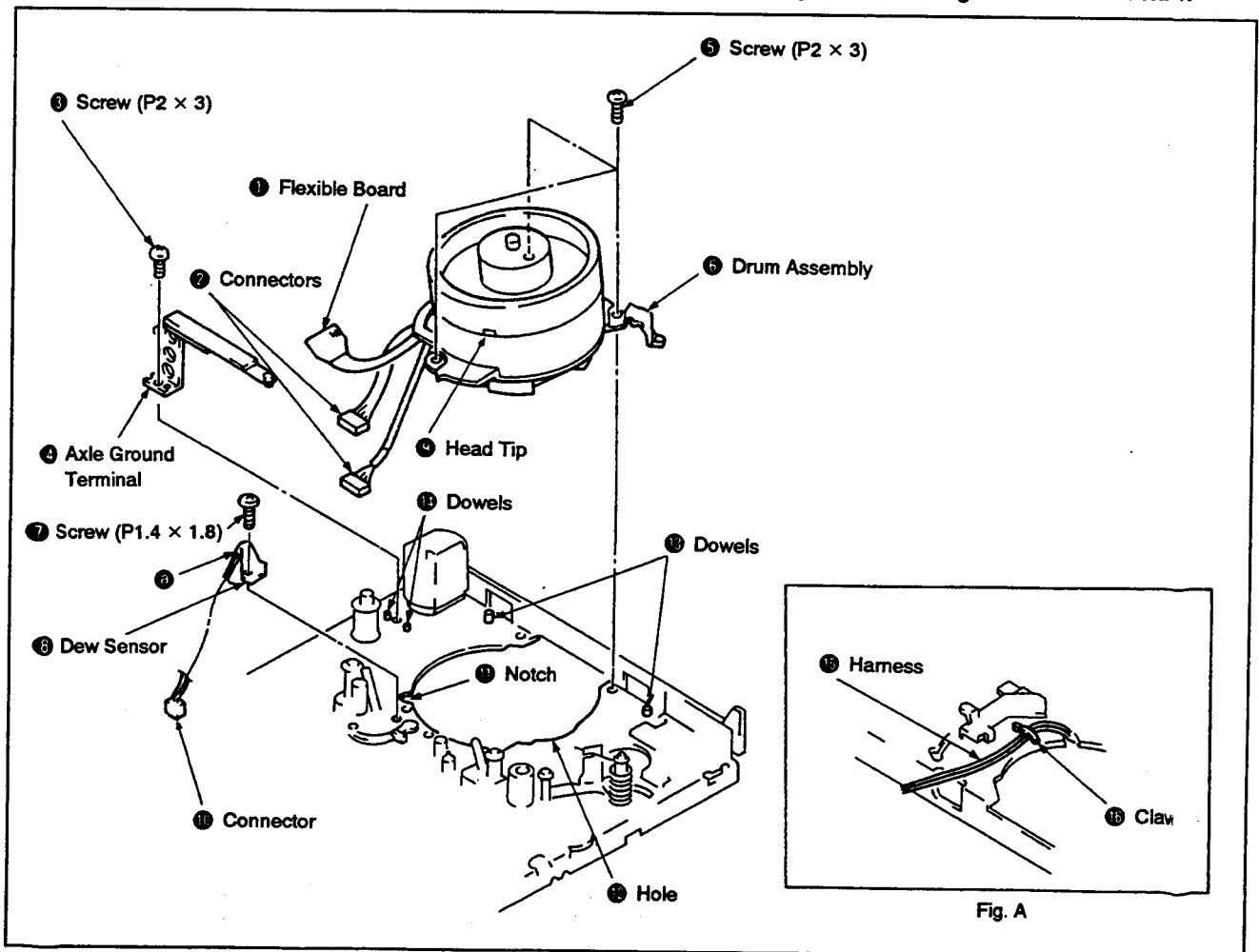


Fig. 3-14.

### 3-14. EJECT LEVER, SWITCH LEVER ASSEMBLY, PINCH ROLLER SUB ARM ASSEMBLY

#### 1. Removal (See Fig. 3-15.)

- 1) Remove the DC motor (capstan motor) as described in section 3-3.
- 2) Set the **STOP** mode.
- 3) Remove the claw ①, then remove the eject lever ②.
- 4) Remove the stopper washer ③, then remove the switch lever assembly ④.
- 5) Remove the pinch roller load spring ⑤.
- 6) Remove the stopper washer ⑥, then remove the pinch roller sub arm assembly ⑦.

#### 2. Installation (See Fig. 3-15.)

- 1) Grease the axle ⑧ (See Fig. A).
- 2) Assemble by inserting ⑧ part of the pinch roller sub arm assembly ⑦ into the slot ⑨, then insert the pin ⑩ into the loading lever assembly notch ⑪.
- 3) Secure with the stopper washer ⑥.

- 4) Mount the pinch roller load spring ⑤ by catching its ⑬ end between the claw ① and the chassis side and its ⑭ end to the claw ①.
- 5) Apply half a drop of oil to the axle ⑬ (See Fig. B).
- 6) Align the groove ⑫ of the switch lever assembly ④ with the mode detector switch protrusion ⑮, mount it on the axle ⑬, then insert the pin ⑯ into the drive gear (left) assembly ⑰ outer groove.
- 7) Secure with the stopper washer ③.
- 8) Mount the eject lever ② and close the claw ①.
- 9) Mount the DC motor (capstan motor) as described in section 3-3.

**Note:** When mounting the switch lever assembly ④ onto the axle ⑬ with the tension regulator arm assembly installed, set the pin ⑯ to the arrow **A** side of the switch lever assembly ④.

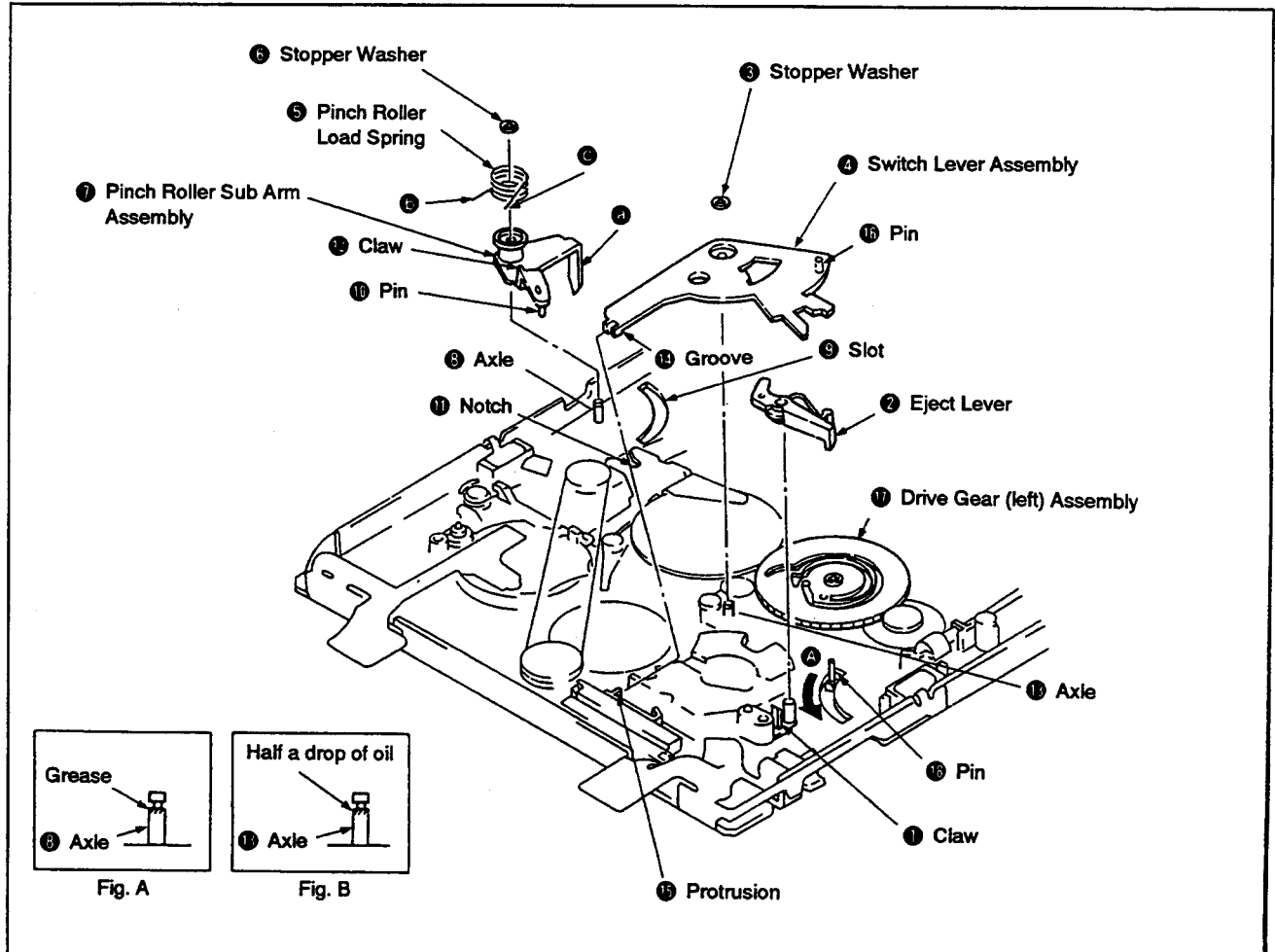


Fig. 3-15.



### 3-16. IDLER PULLEY, TS BRAKE ASSEMBLY, LB GEAR ASSEMBLY, RK GEAR ASSEMBLY

#### 1. Removal (See Fig. 3-17.)

- 1) Remove the DC motor (capstan motor) as described in section 3-3.
- 2) Remove the switch lever assembly as described in section 3-14.
- 3) Remove the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly described in section 3-15.
- 4) Set the **STOP** mode.
- 5) Remove the stopper washer ①, then remove the idler pulley ②.
- 6) Open the claw ③, then remove the TS brake assembly ④.
- 7) Remove the torsion coil spring (LB) ⑤.
- 8) Remove the stopper washer ⑥, then remove the LB gear assembly ⑦.
- 9) Remove the RK gear assembly ⑧.

**Note:** When removing the idler pulley ②, take care not to touch the flange section ②. (See Fig. C.)

#### 2. Installation (See Fig. 3-17.)

- 1) Apply half a drop of oil to the axle ⑨ (See Fig. A).
- 2) Mount the RK gear assembly ⑧ onto the axle ⑨, keeping it in horizontal position.
- 3) Apply half a drop of oil to the axle ⑩ (See Fig. B).
- 4) Mount the LB gear assembly ⑦ onto the axle ⑩ and secure it with the stopper washer ⑥.
- 5) Insert the torsion coil spring (LB) ⑤ into the axle ⑪, then hook it to the mechanism chassis notch ⑫ and to the tab ⑬.
- 6) Mount the TS brake assembly ④ and close the claw ③.
- 7) Apply half a drop of oil to the axle ⑩ (See Fig. D).
- 8) Mount the idler pulley ② onto the axle ⑩, then secure it with the stopper washer ①.
- 9) Mount the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly as described in section 3-15.
- 10) Mount the switch lever assembly as described in section 3-14.
- 11) Mount the DC motor (capstan motor) as described in section 3-3.

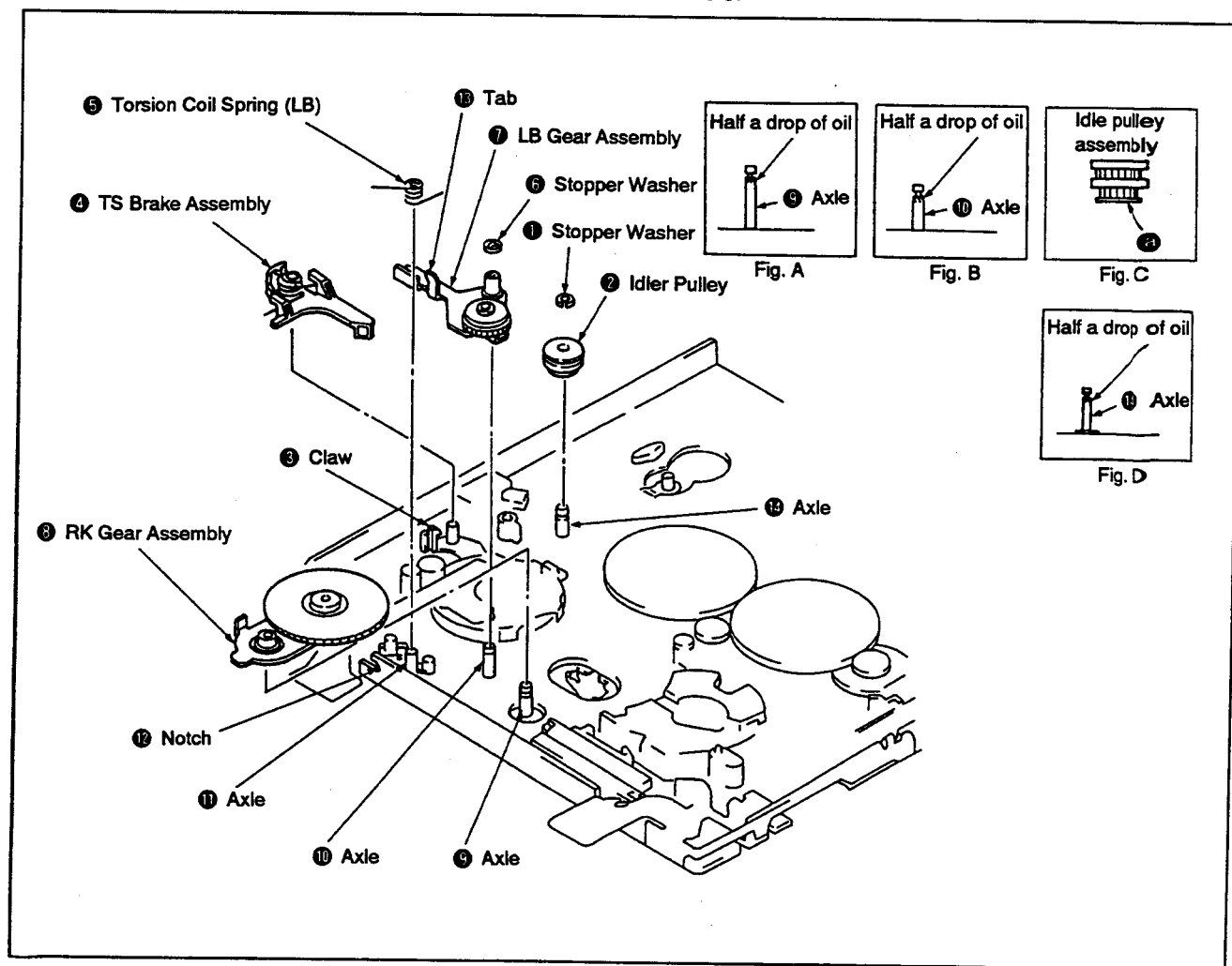


Fig. 3-17.

### 3-17. UL GEAR, UL BRAKE, UL ARM, LB PLATE SPRING

#### 1. Removal (See Fig. 3-18.)

- 1) Remove the switch lever assembly as described in section 3-14.
- 2) Remove the stopper washer ①, then remove the UL gear ②.
- 3) Remove the UL arm ③, the 1.6 mm-diameter poly washer ④ and the LB plate spring ⑤.
- 4) Remove the UL brake ⑥.

#### 2. Installation (See Fig. 3-18.)

- 1) Mount the UL brake ⑥.
- 2) Apply half a drop of oil to the axle ⑦ (See Fig. A).
- 3) Mount the LB plate spring ⑤ to the axle ⑦ as shown in Fig. B, then install the 1.6mm-diameter poly washer ④.
- 4) Mount the UL arm ③ to the axle ⑦ so that the protrusion ⑧ comes into the groove ⑨ of the UL brake ⑥.
- 5) Mount the UL gear ② to the axle ⑦ and engage it with the gear of the drive gear (left) assembly ⑩.
- 6) Install the stopper washer ①.
- 7) Mount the switch lever assembly as described in section 3-14.

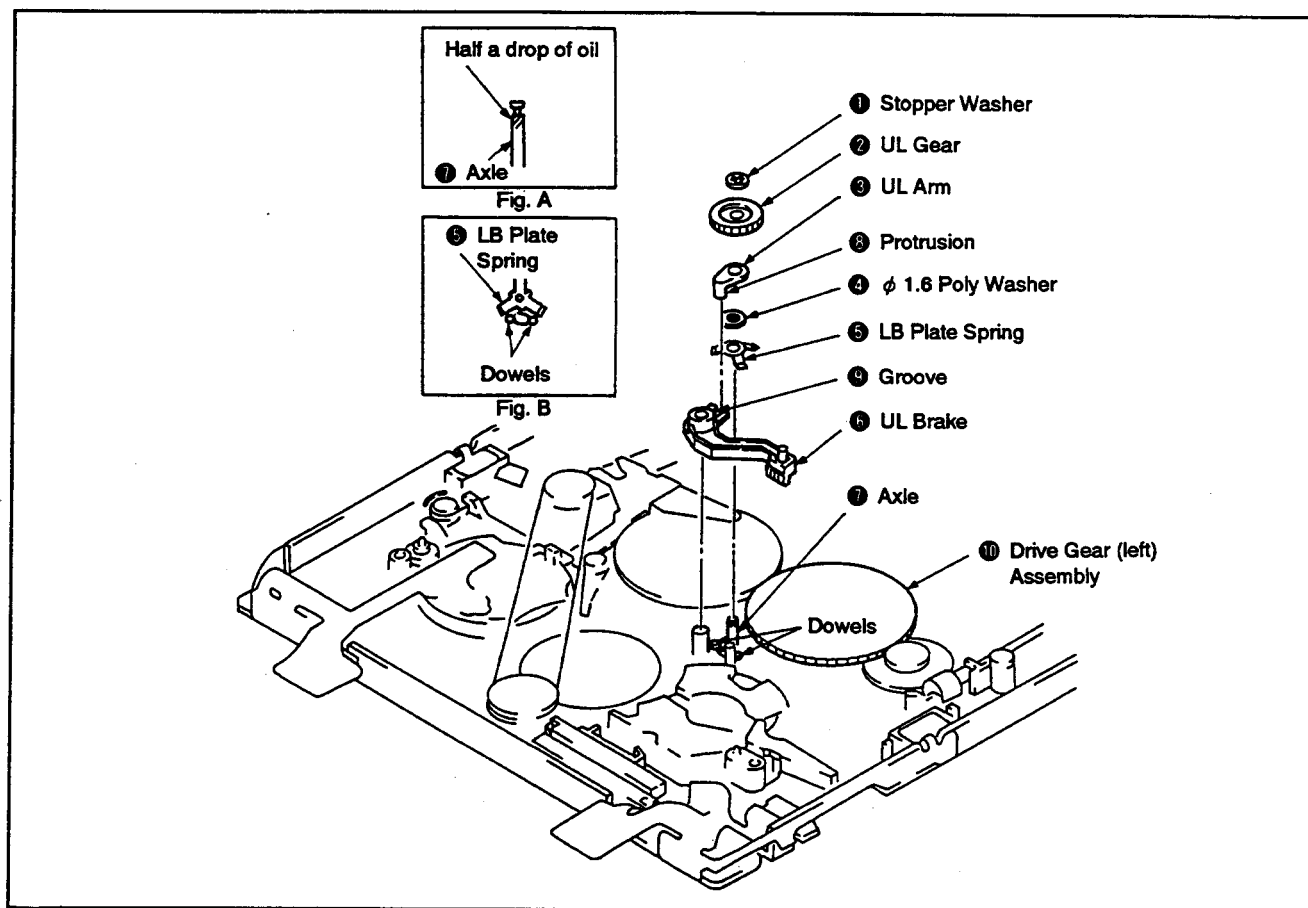


Fig. 3-18.



### 3-18. COASTER (RIGHT) ASSEMBLY, DRIVE GEAR (RIGHT) ASSEMBLY

#### 1. Removal (See Fig. 3-19.)

- 1) Remove the DC motor (capstan motor) as described in section 3-3.
- 2) Remove the drum unit as described in section 3-13.
- 3) Remove the switch lever assembly as described in section 3-14.
- 4) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 5) Set the **STOP** mode.
- 6) Remove the screw ①, then remove the coaster plate spring ② and the coaster (right) assembly ③.
- 7) Remove the two screws ④, then remove the reinforcing plate TT ⑤.
- 8) Remove the stopper washer 1.5 ⑥, then remove the drive gear (right) assembly ⑦.

#### 2. Installation (See Fig. 3-19.)

- 1) Grease the points of the mechanism chassis shown in Fig A.
- 2) Apply half a drop of oil to the axle ⑧ (See Fig. F).
- 3) Grease pin ⑨, axle ⑩ and dowel ⑪ of the coaster (right) assembly ③ (See Fig. D).
- 4) Mount by aligning the pin ⑨ and the axle ⑩ with the slot ⑪ of the mechanism chassis.
- 5) Move the brake release arm ⑫ in the direction of the arrow ⑬ to put it out of the way.

- 6) Mount the drive gear (right) assembly ⑦ to the axle ⑧, and engage it with the drive gear (left) assembly ⑬ as shown in Fig. B.
- 7) Align the ⑭ part with the ⑮ part, and the hole ⑯ with the pin ⑨ of the coaster (right) assembly ③.
- 8) Install the stopper washer 1.5 ⑥.
- 9) Mount by aligning the coaster plate spring ② with the axle ⑩ of the coaster (right) assembly ③ and pin ⑨, then secure with the screw ①.
- 10) Mount the reinforcing plate TT ⑤ aligning it with the dowel ⑪, then tighten the two screws ④ in the indicated order.
- 11) Grease the points indicated in Figs. C and E.
- 12) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 13) Mount the switch lever assembly as described in section 3-14.
- 14) Mount the drum unit as described in section 3-13.
- 15) Mount the DC motor (capstan motor) as described in section 3-3.

**Note:**

- Screw ① should be tightened with a tightening torque of approx. 500g·cm. If tightened too much, the coaster (right) assembly ③ and the coaster plate spring ② will be deformed.
- After installing, be sure to perform tape path adjustment as described in section 4.

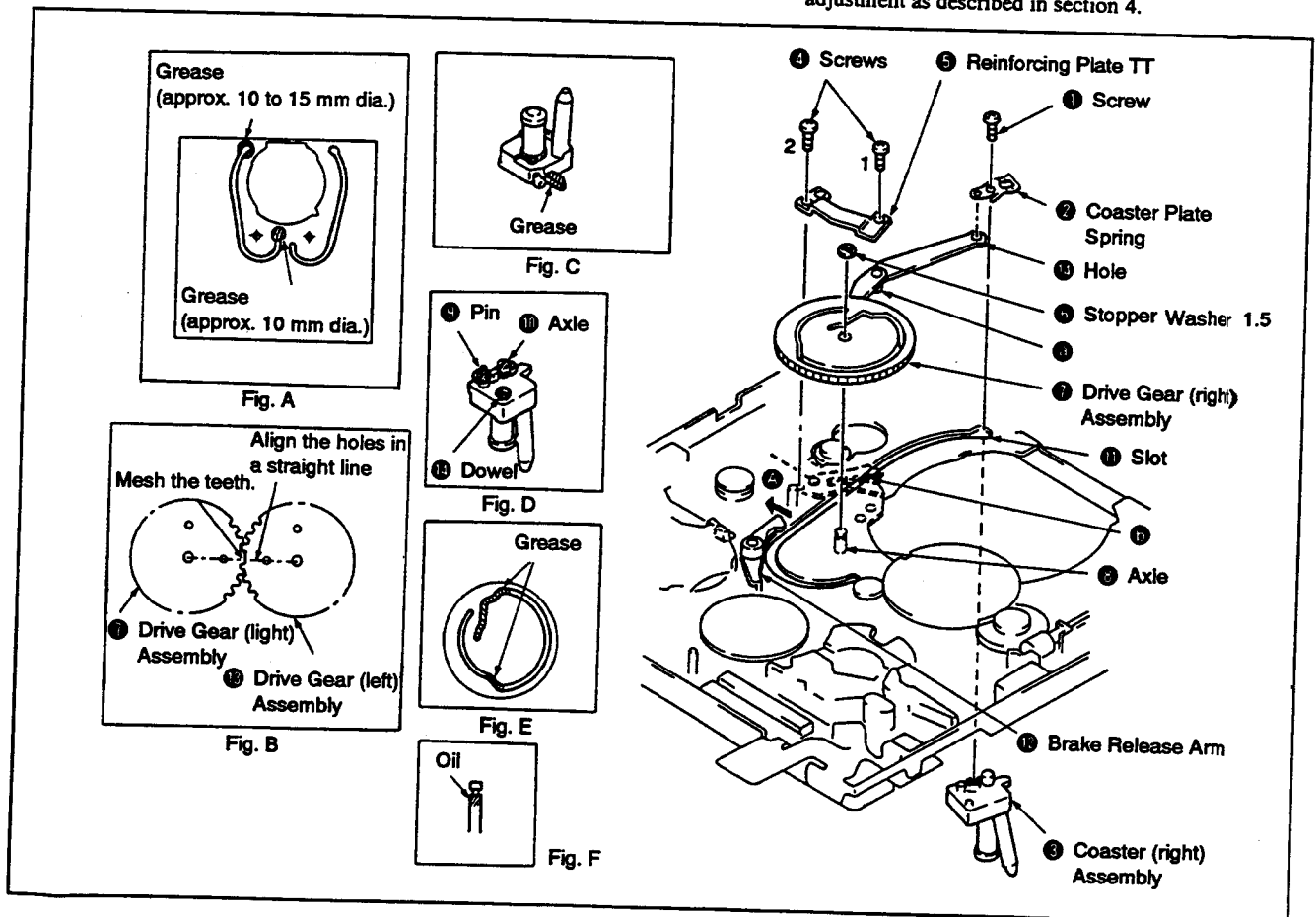


Fig. 3-19.

### 3-19. COASTER (LEFT) ASSEMBLY, DRIVE GEAR (LEFT) ASSEMBLY

#### 1. Removal (See Fig. 3-20.)

- 1) Remove the DC motor (capstan motor) as described in section 3-3.
- 2) Remove the drum assembly as described in section 3-13.
- 3) Remove the switch lever assembly and the pinch roller sub-arm assembly as described in section 3-14.
- 4) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 5) Remove the coaster (right) assembly and the drive gear (right) assembly as described in section 3-18.
- 6) Remove the screw ①, then remove the coaster plate spring ② and the coaster (left) assembly ③.
- 7) Remove the two screws ④, then remove the reinforcing plate SS assembly ⑤.
- 8) Remove the stopper washer 1.5 ⑥, then remove the drive gear (left) assembly ⑦.

#### 2. Installation (See Fig. 3-20.)

- 1) Grease the points of the mechanism chassis shown in Fig A.
- 2) Apply half a drop of oil to the axle ⑧ (See Fig. E).
- 3) Grease pin ⑨, axle ⑩ and dowel ⑪ of the coaster (left) assembly ③ (See Fig. B).
- 4) Mount by aligning the pin ⑨ and the axle ⑩ with the slot ⑪ of the mechanism chassis.
- 5) Fit the drive gear (left) assembly ⑦ to the axle ⑧, and mount so that the gear engages with the wheel gear ⑫ and the UL gear ⑬.

- 6) Align the ② part with the slot ⑪, and the hole ⑭ with the pin ⑨ of the coaster (left) assembly ③.
- 7) Install the stopper washer 1.5 ⑥.
- 8) Mount by aligning the coaster plate spring ② with the axle ⑩ and pin ⑨ of the coaster (left) assembly ③, then secure with the screw ①.
- 9) Mount the reinforcing plate SS assembly ⑤ aligning it with the dowel ⑪, then tighten the two screws ④ in the indicated order.
- 10) Grease points indicated in Figs. C and D.
- 11) Mount the coaster (right) assembly and the drive gear (right) assembly as described in section 3-18.
- 12) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 13) Mount the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
- 14) Mount the drum assembly as described in section 3-13.
- 15) Mount the DC motor (capstan motor) as described in section 3-3.

**Note:**

- Screw ① should be tightened with a tightening torque of approx. 500g·cm. If tightened too much, the coaster (right) assembly ③ and the coaster plate spring ② will be deformed.
- After installing, be sure to perform tape path adjustment as described in section 4.

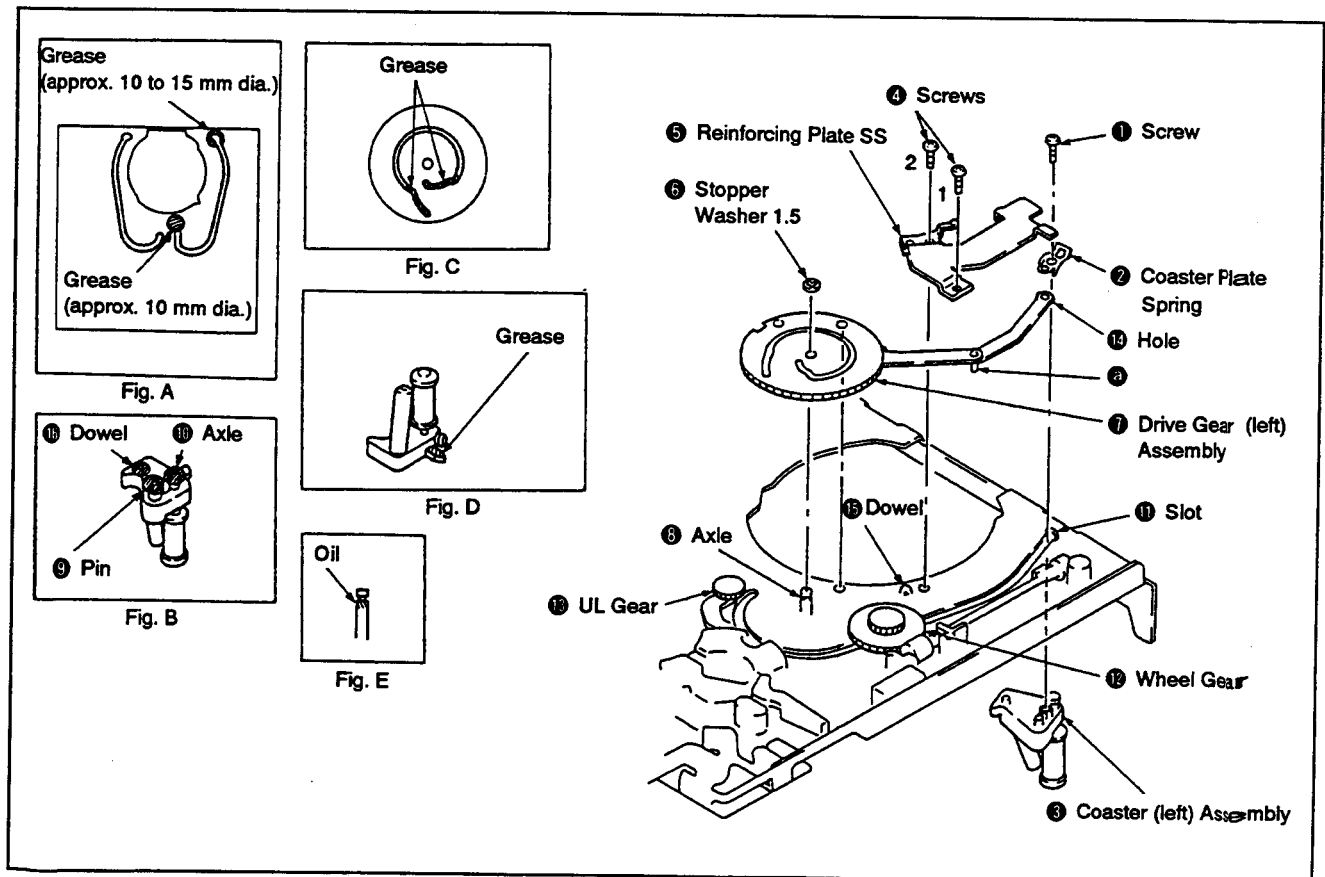


Fig. 3-20.

### 3-20. LOADING MOTOR, BRAKE RELEASE ARM, WHEEL GEAR, WORM ASSEMBLY

#### 1. Removal (See Fig. 3-21.)

- 1) Remove the DC motor (capstan motor) as described in section 3-3.
- 2) Remove the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
- 3) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 4) Remove the drive gear (right) assembly as described in section 3-18.
- 5) Remove the drive gear (left) assembly as described in section 3-19.
- 6) Remove the two screws ①, then remove the loading motor assembly ②.
- 7) Remove the brake release arm ③.
- 8) Remove the stopper washer ④, then remove the wheel gear ⑤.
- 9) Remove the worm assembly ⑥ from the six claws ⑦.

#### 2. Installation (See Fig. 3-21.)

- 1) Mount the worm assembly ⑥, matching it to the six claws ⑦.
- 2) Grease the shaded parts of the worm assembly ⑥ (five places) (see Fig A).
- 3) Apply half a drop of oil to the axle ⑧ (See Fig. B).
- 4) Fit the wheel gear ⑤ to the axle ⑧ and engage it with the gear of the worm assembly ⑥.
- 5) Mount the brake release arm ③.
- 6) Grease the whole perimeter of the gear of the loading motor assembly ②.
- 7) Align the loading motor assembly ② with the mechanism chassis and secure it with the two screws ②.
- 8) Mount the drive gear (left) assembly as described in section 3-19.
- 9) Mount the drive gear (right) assembly as described in section 3-18.
- 10) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
- 11) Mount the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
- 12) Mount the DC motor (capstan motor) as described in section 3-3.

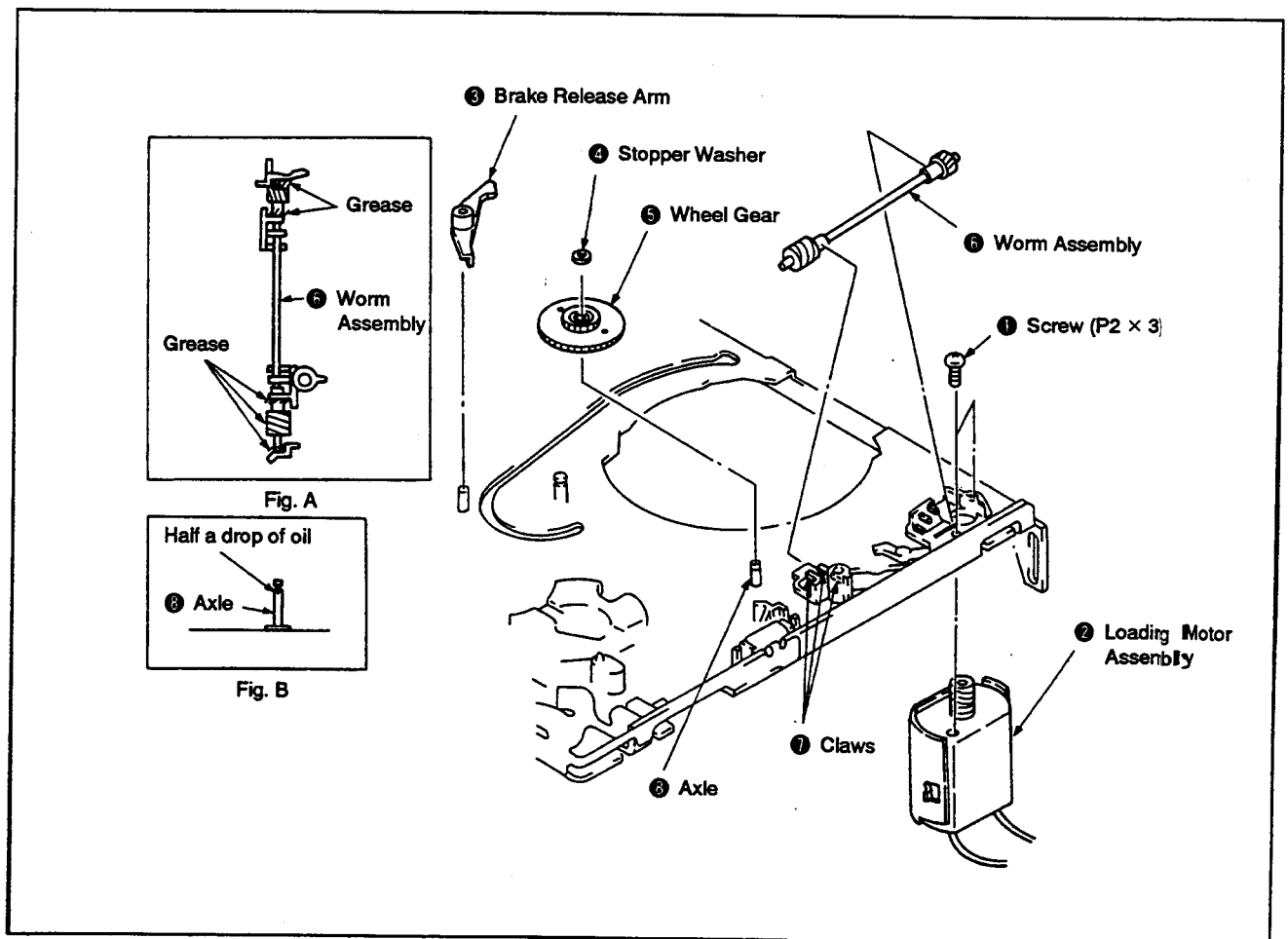


Fig. 3-21.

### 3-21. ROTARY UPPER DRUM REPLACEMENT

#### 1. Removal

- If possible, make a recording before removal.
- 1) Detach the six solderings ⑧, then use a pair of tweezers or the like to confirm that the terminals passing through the board holes from below can move freely.
- 2) Remove the two screws ① (See Fig. 3-22).
- 3) Mount the jig ④ (Ref. No. J-7) with the two supplied screws ②, then screw the attached hexagon socket screws ③ to the jig ④. The rotary upper drum ⑤ will move upward and come off (See Fig. 3-23).

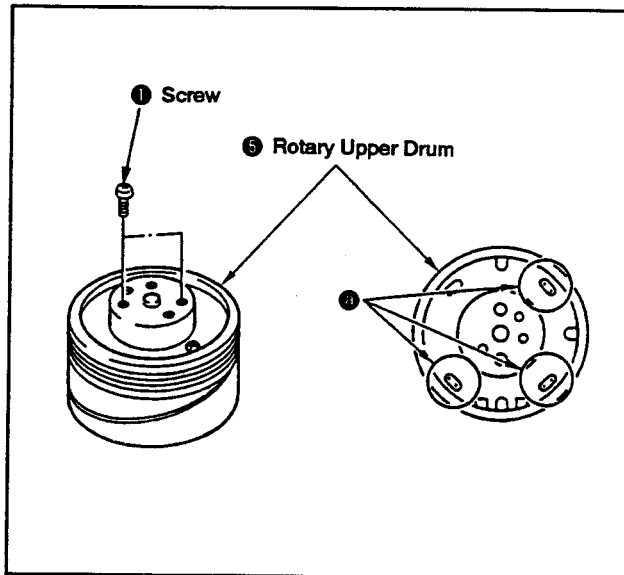


Fig. 3-22.

#### 2. Installation

- 1) Wipe clean the flange surface and the rotary upper drum ⑤ surface that makes contact with it, and confirm that they are free from dirt and scratches.
- 2) Insert the jig ⑦ (Ref. No. J-7) into the drum positioning hole, then set the rotary upper drum ⑤ by passing the jig through its positioning hole ⑥.
- Note:** Confirm that the terminals ⑧ protrude slightly from the rotary upper drum board holes (See Fig. 3-24).
- 3) Remove the jig ⑦ and push down the rotary upper drum ⑤ gently by hand. If it does not go all the way down, secure it temporarily by tightening the two hexagon socket screws ① alternately.
- 4) Insert the jig ⑦ into the positioning hole ⑥ again and confirm that it goes in smoothly. If it does not, loosen the two screws ①, repeat step 3 of the Removal paragraph and restart the setting procedure.
- 5) Tighten the screws ①.
- 6) Solder the terminals ⑧ (② in Fig. 3-22).

**Note:** Take care that no solder flows below the board.

**Note:** After installing, be sure to perform tape path adjustment as described in section 4.

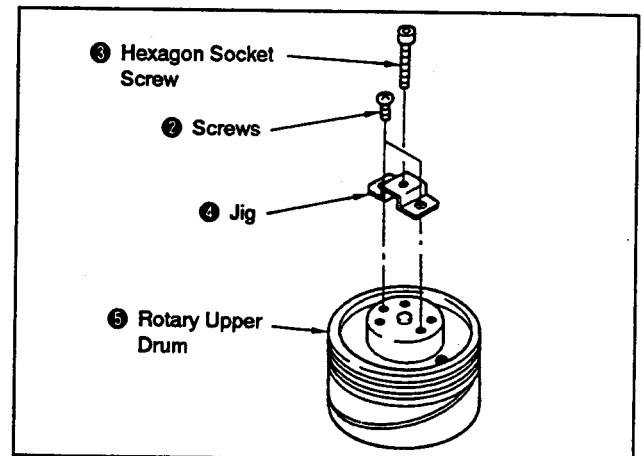


Fig. 3-23.

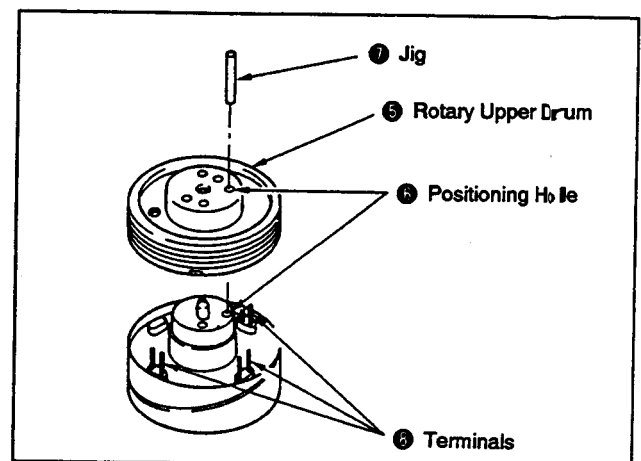


Fig. 3-24.

### 3-22. FWD BACK TENSION (See Fig. 3-25.)

- 1) Set the torque cassette (Ref. No. J-6).
- 2) Set the FWD mode and confirm that S reel table torque value is within 9 to 13 g\*cm.
- 3) If the torque value does not meet the specification, adjust the adjust arm ①.

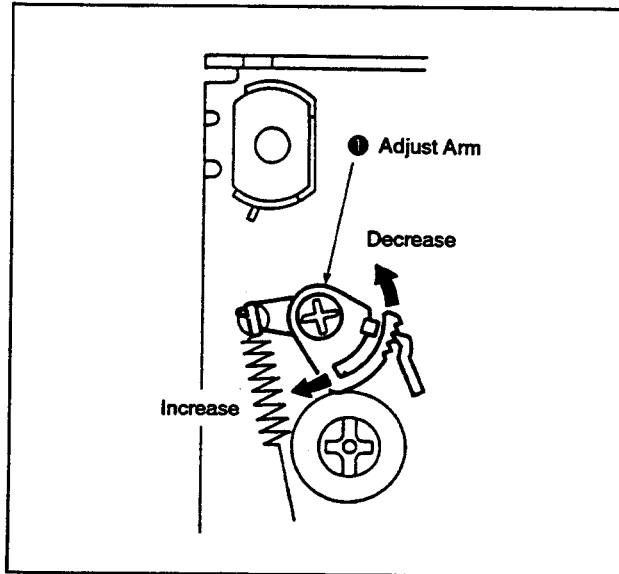


Fig. 3-25.

### 3-23. REEL TORQUE CHECK

- 1) Set the torque cassette.
- 2) Set the FWD mode and confirm that T reel table torque value is within 7 to 15 g\*cm.
- 3) Set the REV mode and confirm that S reel table torque value is within  $29 \pm 6$  g\*cm.
- 4) Set the REV mode and confirm that T reel table torque value is within 13 to 25 g\*cm.
- 5) If a torque value does not meet the specifications above, replace the corresponding reel table.

## 4. TAPE PATH ADJUSTMENT

### [The Track Shift Mode]

In the 8 mm video system, instantaneous tape speed control is performed using four kinds of pilot signals, and high-precision tracking is achieved through the ATF (Automatic Track Finding) system. This makes a tracking control knob unnecessary and allows for precise tracing.

On the other hand, however, tape path adjustment presents some difficulties when the ATF system is used. Namely, since the ATF system will automatically compensate to some degree for head tracing errors, thorough adjustment is not possible.

This can be solved by setting the track shift mode for tracking fine adjustment. ATF will be compulsorily activated, shifting the tracking amount by a fixed amount (approx. 1/4) and thus making tracking fine adjustment easy. Furthermore, no track shift jigs are required.

### 4-1. TRACK SHIFT MODE SETTING

#### [Setting Procedure]

- Connect the TEST A and TEST B terminals to the COM terminal.

Example:

NTSC ..... GV-8

PAL ..... GV-8E

Connect Pins ① and pin ③ of CN017 on the  
{ SV-34 board (GV-8) } to pin ② of it. (See Fig. 4-1)  
{ SV-35 board (GV-8E) }

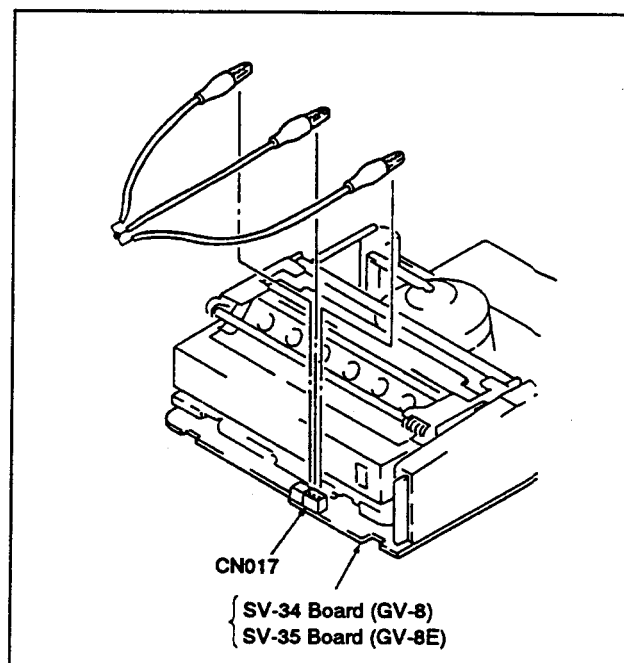


Fig. 4-1.

**[Note on Adjustment of No.7 Guide (TG-7)]**

The height adjustment screw for No.7 guide (TG-7) is located at some distance from the guide (refer to Fig. 4-2).

Therefore, when performing section 4-6. No.7 Guide (TG-7) Adjustment it is convenient to use the alignment tape for tracking (Ref. No. J-5), modified as follows, and perform adjustment in playback mode.

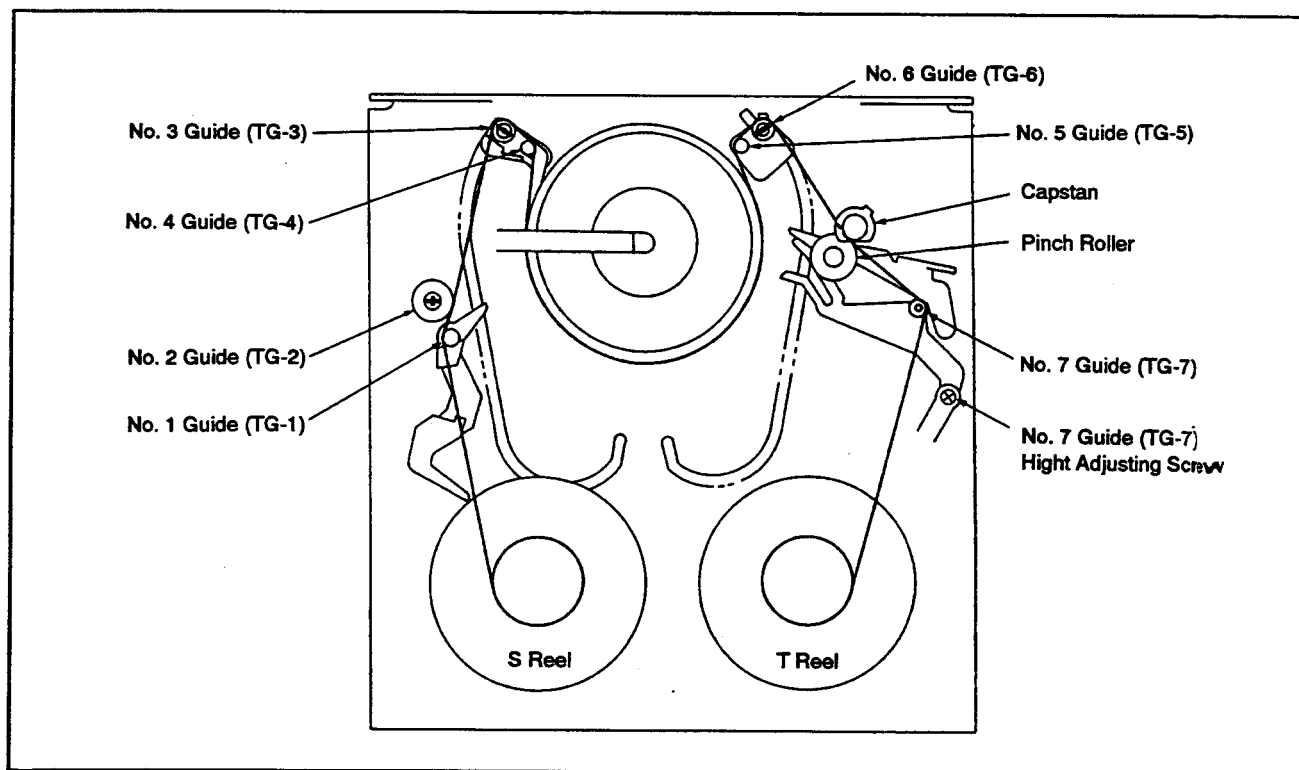
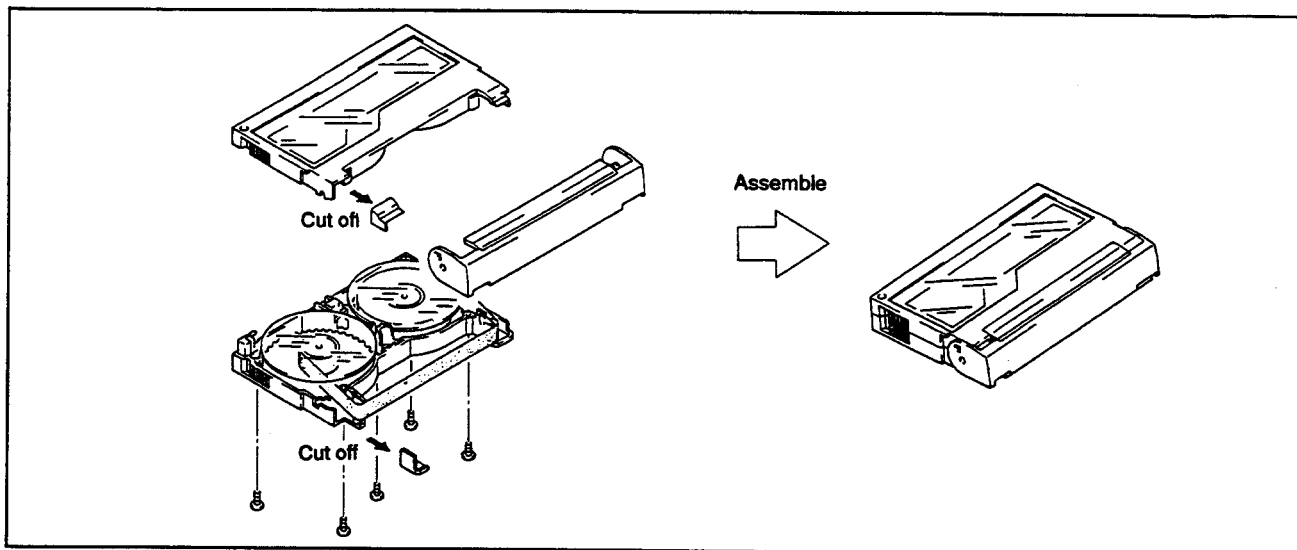


Fig. 4-2.



## 4-2. PREPARATIONS FOR ADJUSTMENT

- 1) Clean tape path surfaces (tape guides, drum, capstan shaft, pinch roller) (See Fig. 4-2).

- 2) Connection of oscilloscope and output method of waveform.

CH 1: RF signal output of the drum head (V RF OUT)

Method for signal output:

Short-circuit the external trigger output (RF SW. P) and GND.

Example:

NTSC ..... GV-8

PAL ..... GV-8E

CH 1: Pin ③ (V RF OUT) of CN018 on the

- { SV-34 board (GV-8)
- { SV-35 board (GV-8E)

Method for signal output:

Short-circuit pin ① (GND) and pin ② (RF SW.P) of CN018 on the

- { SV-34 board (GV-8)
- { SV-35 board (GV-8E)

- 3) Play back the alignment tape for tracking adjustment (Ref. No. J-5).
- 4) Confirm that both the entrance and exit side RF waveforms of the oscilloscope are flat (See Fig. 4-4). If they are not, adjust as follows.

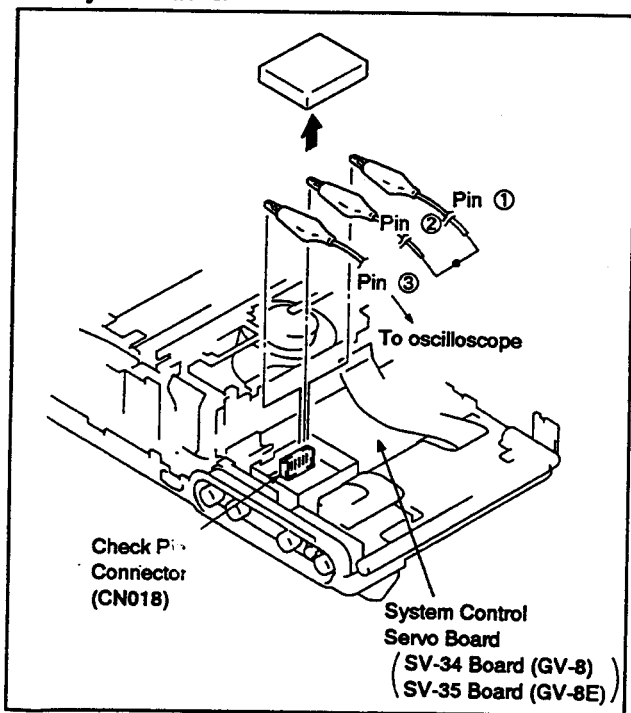


Fig. 4-3.

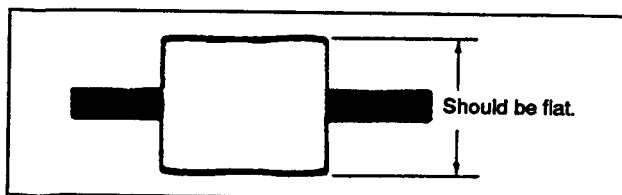


Fig. 4-4.

## 4-3. TRACKING ADJUSTMENT (See Fig. 4-5.)

- 1) Play back the alignment tape for tracking adjustment.
- 2) Pass a hexagonal wrench, screwdriver (Ref. No. J-11) or the like through the hole ①, loosen the lock screw ② a little, then make the entrance side waveform flat by turning the No. 3 guide (TG-3) ③.
- 3) Pass a hexagonal wrench, screwdriver or the like through the hole ④, loosen the lock screw ⑤ a little, then make the exit side waveform flat by turning the No. 6 guide (TG-6) ⑥.

**Note:** Take care not to loosen lock screws too much, since guides come loose easily.

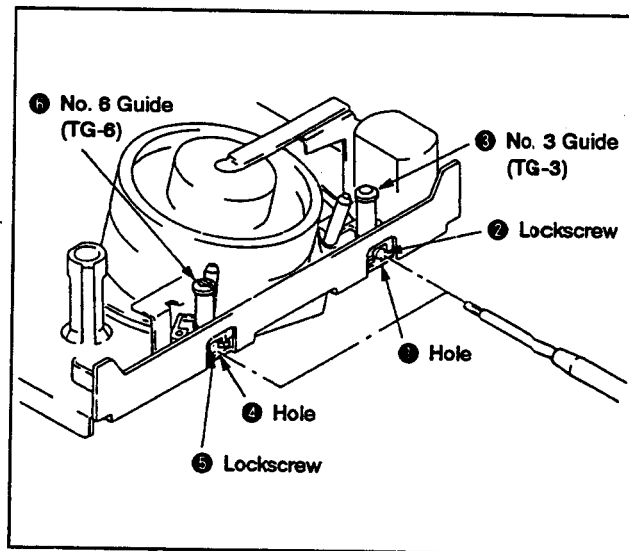


Fig. 4-5.

#### 4-4. TRACKING FINE ADJUSTMENT (See Figs. 4-5. and 4-6.)

- 1) Play back the alignment tape for tracking adjustment and set the track shift mode.
- 2) Confirm whether the waveform is flat. If it is not, turn the No. 3 (TG-3) and No. 6 (TG-6) guides so that it becomes flat.
- 3) Fix the No. 3 guide ③ by tightening its lock screw ②. Then confirm that the entrance side waveform has not changed.
- 4) Fix the No. 6 guide ⑥ by tightening its lock screw ⑤. Then confirm that the exit side waveform has not changed.

**Note:** The set screws ② and ⑤ should be tightened with a tightening torque of approx.  $200\text{g}\cdot\text{cm} \pm 10\%$ . If tightened too much, there is danger of damaging the thread.

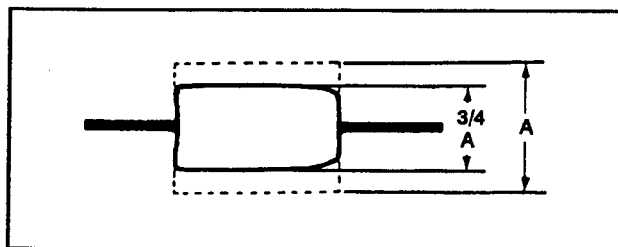


Fig. 4-6.

#### 4-5. No. 2 GUIDE (TG-2) ADJUSTMENT

When the No. 2 guide has been turned or replaced, perform height presetting before this adjustment.

##### 4-5-1. No. 2 Guide (TG-2) Height Presetting (See Fig. 4-7.)

- 1) Adjust the height from the mechanism chassis upper surface to the TG-2 upper flange ① upper surface to 18.6 mm by rotating the TG-2 upper flange ①.

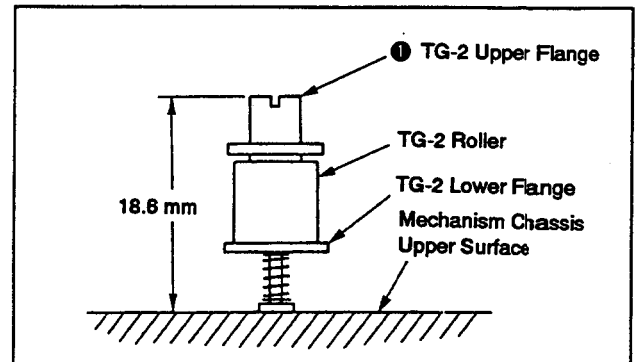


Fig. 4-7.

#### [Reference]

This U mechanism is equipped with four adjustable guides (TG-2, 3, 6 and 7). To raise or lower the respective guide rotate the corresponding adjustment screw as shown below.

Guide	Guide adjustment	Rotating direction of adjustment screw
TG-2, 3, 6	Raise	Counterclockwise
	Lower	Clockwise
TG-7	Raise	Counterclockwise
	Lower	Clockwise

#### 4-5-2. No. 2 Guide (TG-2) Adjustment (See Figs. 4-8. and 4-9.)

- 1) Play back a thin tape like the P6-120MP, etc. and set the REV mode.
  - 2) Confirm that the tape is not bent at the lower flange ② of the No. 2 guide (TG-2) ① (See Fig. 4-8). If it is, turn the upper flange ③ of the No. 2 guide (TG-2) ① clockwise with a screwdriver, lowering it until the tape is straightened.
  - 3) Play back the alignment tape for tracking adjustment.
  - 4) Perform tracking adjustment and tracking fine adjustment as described in sections 4-3. and 4-4.
  - 5) In the track shift mode, CUE/REV the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds.
  - 6) If the waveform is not normal (See Fig. 4-9), turn the upper flange ③ of the No. 2 guide (TG-2) ① 90° counter-clockwise and repeat step 5.
- Repeat steps 5 and 6 until a normal waveform is obtained. Then, confirm that the tracking waveform has not changed. If it has, perform fine adjustment of entrance side tracking and repeat step 5.

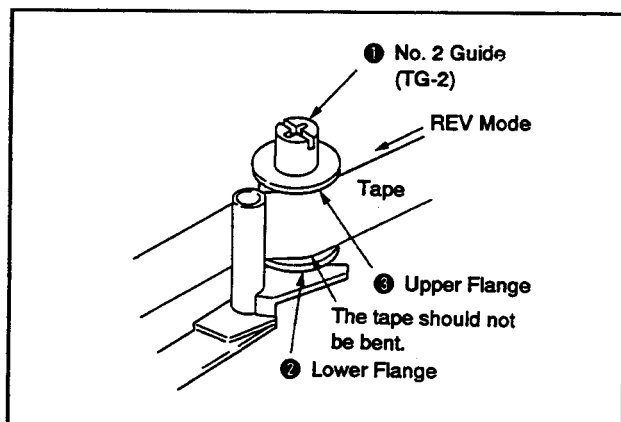


Fig. 4-8.

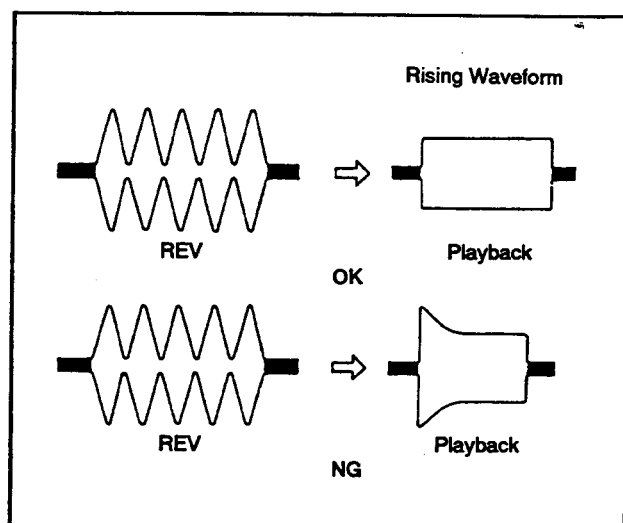


Fig. 4-9.

#### 4-6. No. 7 GUIDE (TG-7) ADJUSTMENT (See Fig. 4-10.)

- 1) Play back the alignment tape for tracking adjustment and set the REV mode.
- 2) Confirm that the tape is not bent between the No. 6 guide (TG-6) ① and the capstan ②. If it is, turn the height adjusting screw ④ of the No. 7 guide (TG-7) ③ until the tape is straightened.
- 3) Set the playback mode again and confirm that the tape is not bent between the capstan ② and the height adjusting screw ④ of the No. 7 guide (specification: 0.5 mm or less). If the tape is bent beyond the specification, turn the No. 7 guide (TG-7) ③ until bending is within the specification (0.5 mm). If in the REV mode tape bending between the No. 6 guide (TG-6) ① and the capstan ② is 0.3 mm or less, adjustment can be considered completed.

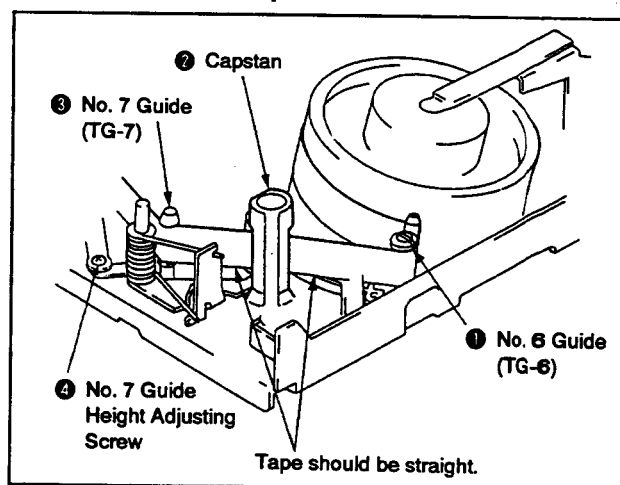


Fig. 4-10.

#### 4-7. CUE AND REV WAVEFORM CHECK (See Fig. 4-11.)

- 1) Play back the alignment tape for tracking adjustment and set the REV mode. Confirm that waveform peaks maintain a constant pitch of 5 seconds or more (See Fig. 4-11). In case pitch is not constant, perform section 4-4. Tracking Fine Adjustment and section 4-6. No. 7 Guide Adjustment.
- 2) Set the CUE mode. Confirm that waveform peaks still maintain a constant pitch of 5 seconds or more (See Fig. 4-11). Otherwise, perform section 4-4. Tracking Fine Adjustment.

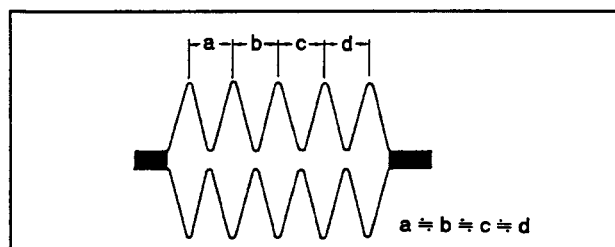


Fig. 4-11.

#### 4-8. CHECK AFTER ADJUSTMENT

##### 4-8-1. Tracking Check

- 1) Confirm that the amplitude of RF waveform is reduced to approx. 3/4 when the track shift mode is set (See Fig. 4-12).
- 2) Then, confirm that the minimum amplitude value (EMIN) is 65% of the maximum value (EMAX) or larger (See Fig. 4-13).
- 3) Confirm that no large fluctuations occur on the waveform (See Fig. 4-14).

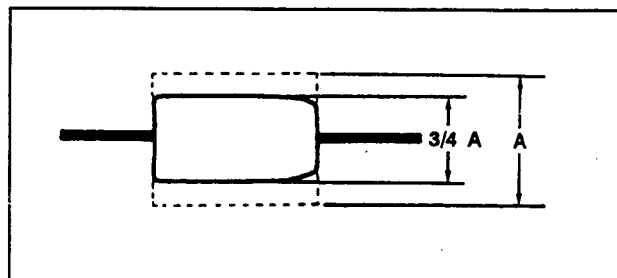


Fig. 4-12.

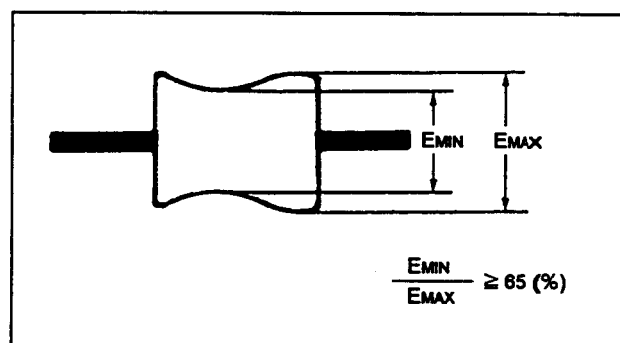


Fig. 4-13.

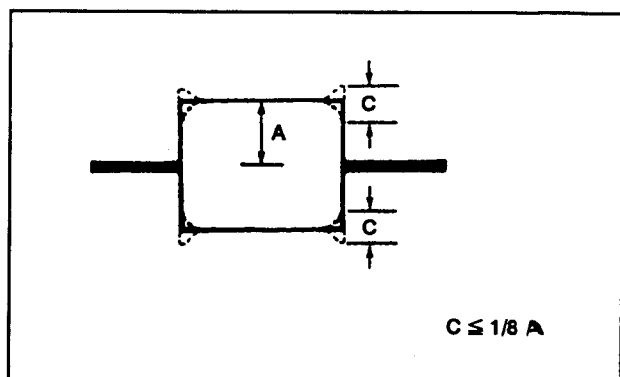


Fig. 4-14.

#### 4-8-2. Rising Check (See Fig. 4-15.)

- 1) Play back the alignment tape for tracking adjustment.
- 2) Cancel the track shift mode.
- 3) Eject the tape, then load it again.
- 4) Set the playback mode and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller (See Fig. 4-15).
- 5) CUE/REV and FF/REW the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller.
- 6) Repeat steps 3) to 5) once more.

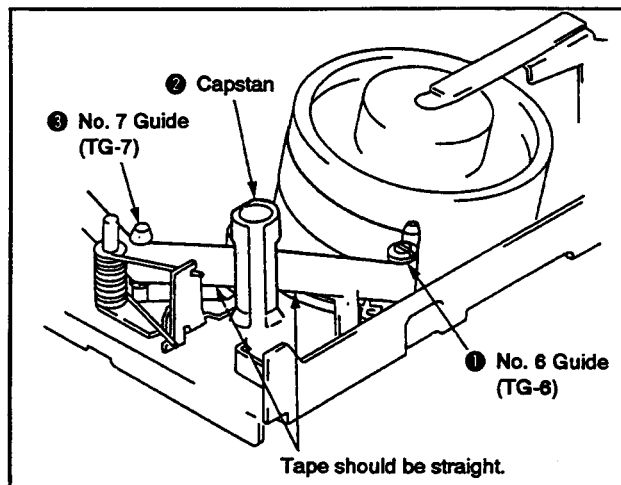


Fig. 4-15.

#### 4-8-3. Tape Path Check (See Fig. 4-16.)

- 1) Play back a thin tape like the P6-120MP (NTSC) or P5-90MP (PAL), etc. and confirm that no tape rising occurs, and that curling is less than 0.3 mm, at the lower flange of the No. 2 guide, the upper flange of the No. 3 guide, the upper flange of the No. 6 guide and the No. 7 guide upper and lower flanges.
- 2) Confirm that no tape rising occurs and that curling is less than 0.3 mm at the flanges of all guide when pressing the FF button in the playback mode to set the CUE mode, or the REW button to set the REV mode.

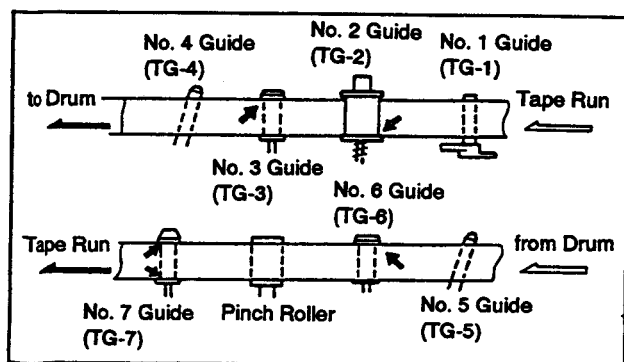


Fig. 4-16.

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